20th Annual report

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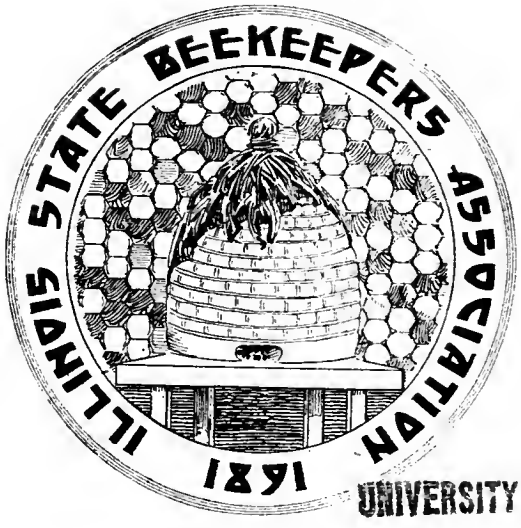
TWENTIETH ANNUAL REPORT

OF THE

Illinois State Beekeepers' Association

Organized February 26, 1891, at
Springfield, Illinois



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Compiled by
GEORGE M. WITHROW, Secretary
Mechanicsburg, Illinois

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LETTER OF TRANSMITTAL.

OFFICE OF THE SECRETARY,
MECHANICSBURG, ILLINOIS, *March 1, 1921.*

To His Excellency, Len. Small, Governor of the State of Illinois.

Sir: I have the honor to transmit herewith the Twentieth Annual Report of the Illinois State Beekeepers' Association.

Respectfully submitted,

GEORGE M. WITHROW, *Secretary.*

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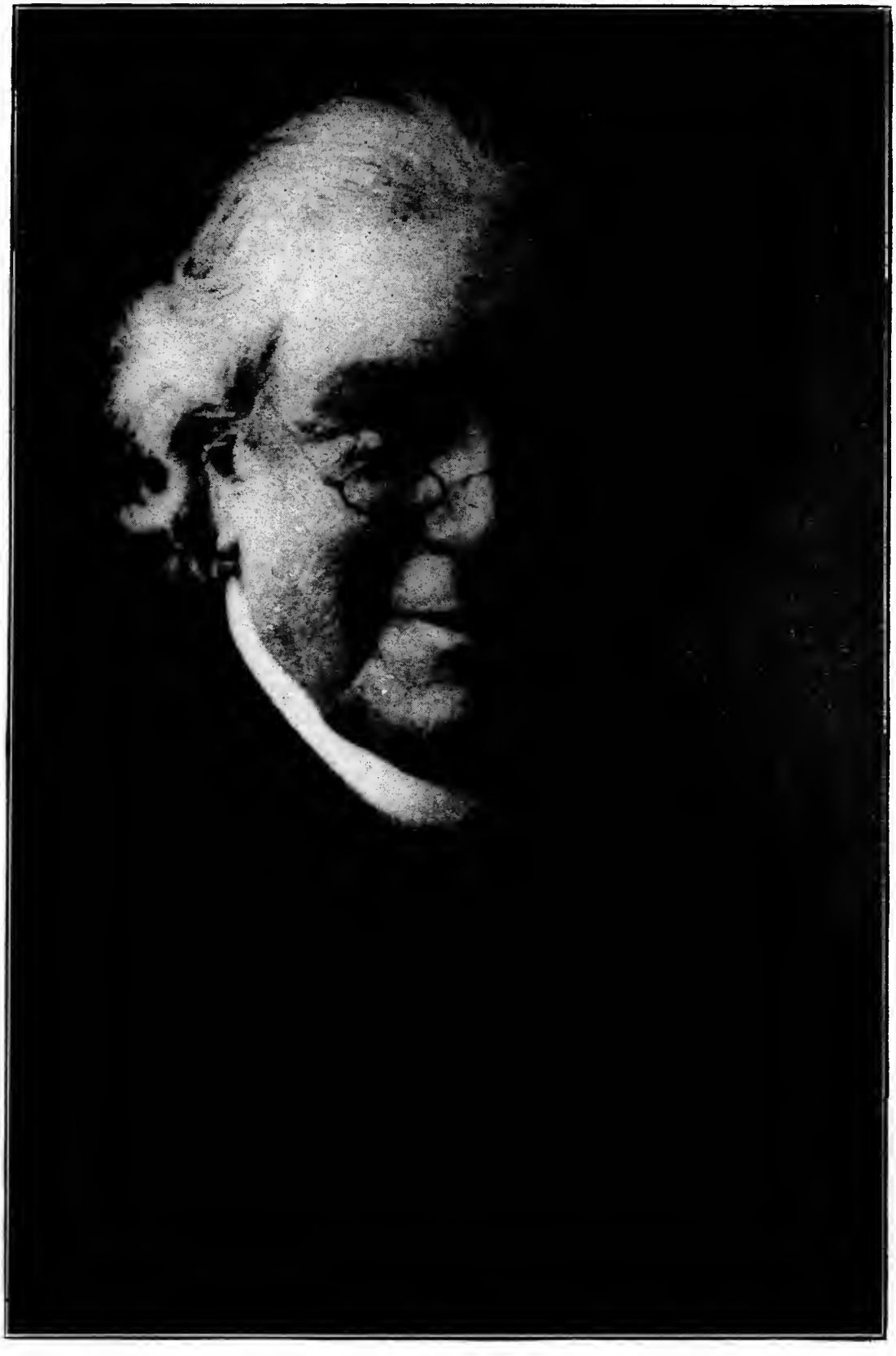


FATHER LANGSTROTH,

1810—1895

Inventor of the Movable Frame Hive.

OFFICERS OF THE ILLINOIS STATE BEEKEEPERS' ASSOCIATION FOR 1921.

DR. ALBERT C. BAXTER . . . . . President
Springfield.

A. L. KILDOW . . . . State Inspector of Apiaries
Putnam.

JAMES A. STONE . . . . . 1st Vice President
Farmingdale.

HARRY L. KING . . . . . 2d Vice President
Springfield.

AARON COPPIN . . . . . 3d Vice President
Wenona.

W. H. WILLIAMS . . . . . 4th Vice President
Pekin.

S. A. TYLER . . . . . 5th Vice President
Emden.

GEORGE M. WITHROW . . . . . Secretary
Mechanicsburg.

GEORGE SEASTREAM . . . . . Treasurer
Pawnee.

List of members will appear in back of Report. Also Index.

UNIVERSITY OF ILLINOIS

DR. A. C. BAXTER,

President of the Illniois State Beekeepers' Association.

PROCEEDINGS

OF THE

THIRTIETH ANNUAL SESSION

OF THE

Illinois State Beekeepers' Association

Tuesday and Wednesday, Dec. 14-15, 1920

Leland Hotel, Springfield, Illinois

ITY LINOIS

GEO. SEASTREAM,

Treasurer of the Illinois State Beekeepers' Association.

PROCEEDINGS OF THE ILLINOIS STATE BEEKEEPERS' ASSOCIATION.

The Thirtieth Annual Meeting of the Illinois State Beekeepers' Association was held at the Leland Hotel, December 14 and 15, 1920.

The meeting was called to order by the President, Dr. A. C. Baxter, Springfield, Illinois.

The Reverend J. H. Morphis, of Farmingdale, Illinois, pronounced the invocation.

Almighty God, Thou creator of heaven and the earth, Thou who hast taught us that all things were created by Thy hand, Thou that hast a great plan by which this world shall all work together in harmony that there may be no collisions between the lights which Thou hast placed in the heaven, that each shall abide in its place and fill its office; Thou who hast made the earth and caused the grass to grow after the winter's storm, Thou who hast planted trees so that they might bloom and bring forth fruit, Thou who hath placed the birds in the branches thereof that they may make melody pleasing to our hearing; Thou art the God of order and the God of Abraham who has set forth all those things that we might live in peace and harmony together, and that we might be happy in the world Thou hast created.

Father, as we gather here today with these men who are giving their time and their attention to the study of the things which Thou hast made, we come to praise Thee, oh Lord, for those who are called to be beekeepers and to study the life of the bee, in order that they may know God's wisdom and God's planning for the happiness of his children. We pray that Thy blessing may be upon these men in their homes. Bless them in their community, bless them in their work, bless them, we pray Thee, in their understanding, Almighty God, for none of us can make a bee, nor we cannot make honey.

It is within the province of those things which Thou hast ordered that we may receive these blessings, so we can pray the blessing of God may be upon the beekeepers' association of this State, that they may be prosperous, and that they may bring forth out of the things which they have learned together here, of knowledge and of wisdom, and give to each other those things which they have learned.

We pray Thy blessing therefore to be upon this organization today and upon all their plans for the future. Sanctify we beseech Thee, the fellowship and friendship of those who gather in these meetings, that it may be a body to look forward year after year to this annual convention, that here they may meet and greet those who have come to this great call, to investigate and to know more about the bee. We ask for the blessing of our Heavenly Father to be upon all this city and upon this government in its details and plans and purposes, and upon all the interests of these people, and we pray that others may be reached, and

GEORGE M. WITHROW,

Secretary of the Illinois State Beekeepers' Association.

that this association may be called into larger influence till it shall reach this entire State with interested men and women who shall bring forth honey in abundance. We ask for the blessing of our Lord to be upon us, and to keep us in the way of life in all our occupations and callings, and protect the church that comes under our ministration, and together with these we commend ourselves to Thy providential care for this day, praying God will direct our steps, and that we may walk upright and be happy and brave continually, that God's name shall be glorified, that our lives may be useful, and that the kingdom of heaven may be extended, for we ask it in Jesus' name, Amen.

THE PRESIDENT.—Having received the annual report so lately and probably being very familiar with what took place last year, we will dispense with the reading of the minutes.

PRESIDENT'S ADDRESS.

Members of The Illinois State Beekeepers' Association, Ladies and Gentlemen:

We are this morning assembled in the Thirtieth Annual Meeting of this Beekeepers' Association. To you who have come to these meetings from year to year, some of whom have grown gray in its service, I extend sincere greetings. To those who are inattendance for the first time, and still others who are favoring us with their presence as visitors I bid you a hearty welcome and invite your attention and participation in the deliberations of this association.

As we meet each year to review the labors of the preceding twelve months, to lay our plans for the future and improve ourselves in our beloved industry we realize how much the burdens of life are lightened and our daily tasks made easier by reason of the lasting friendships formed here. Such friendships make life worth living and such friendships are being made today in this society.

Notwithstanding our happiness and prosperity of the year, yet has it not been without its cloud of sorrow and days of darkness. The Angel of Death has exacted his usual toll. Several members of this association have answered the last call and have gone to their final reward. Of these I will mention but one.

DR. CHARLES C. MILLER.

On September 4, 1920, at his home in Marengo, Illinois, Dr. Miller passed away at the age of 89 years. Dr. Miller was born in Ligonier, Pa., June 10, 1831. He took the degree of A. B. at Union College, Schenectady, N. Y., in 1853 and the title of M. D. was conferred upon him by the University of Michigan in 1856. He practiced medicine but a short time giving his attention to music and beekeeping. In beekeeping he reached international fame. Beekeepers of all time will emulate his integrity, fidelity and amiable disposition.

"It is human to regret what we lose. But in this case why should we mourn? He was over 89 years at his death and had a span of life

given to very few men. He was useful to the last. He did his duty, to all and after a short illness left a beautiful memory."

No greater memorial could be erected, no greater service to the beekeeping industry could be possible than the establishment of a course of beekeeping at our State University in the name of Dr. Miller, endowed by the many beekeepers who have gained so much by his labors.

We have not been able the past year to have as many field meets as we had wished, but on September 10, we attended a meeting at the yard of our State Inspector, A. L. Kildow. This meeting was well attended by many local beekeepers and was of great benefit to all present. Mr. Kildow deserves the thanks of the beekeepers of Putnam County for his efforts in this matter. On October 7th I attended a beekeepers' meeting at Cambridge, given under the auspices of Henry County Farm Bureau. At this meeting great interest was displayed. More of these meetings should be held which calls for increased appropriation and to that end we have added to our budget.

The membership of our association has not increased the past year as it should. Many of the members seem to think that the association is not worth while but they forget how much the industry owes to this society for what it has done in the past and and what it is doing at present. Our inspection system, its very life is due to the efforts of the association and if we fall by the wayside what others have done for us and what we are ourselves doing will have been in vain. If the members of this association will put their shoulder to the wheel and get the beekeepers in their neighborhood to become members, it will be no trouble for this association to get anything it may care to ask for in the way of education and inspection. (Applause.)

THE PRESIDENT.—We will next have the Secretary's report.

SECRETARY'S REPORT.

We have 346 members, mostly in the central and northern part of the State.

From what few reports I have been able to get, I find that honey is selling at about 30 cents retail, that the bees are going into winter quarters in very good condition, and the prospects for another year are good.

I have mailed out 3,280 pieces of mail, of which over 200 were personal letters.

I am greatly disappointed in the number of members secured this year. I told the president last spring that I had my stakes set for 1,500, but would be satisfied with 1,000, so you can see how much I am disappointed.

It seems impossible to get up any interest or cooperation among members as it is, each member should have influence enough to secure at least one new member, this alone would double our membership. It seems impossible to get them to send in a list of names of neighbor beekeepers; only a few responded to my requests to do so. I can assign no reason, except possible jealousy.

I believe they think if they are the only one to belong in their vicinity that they will receive all the benefits to be had, in this they are surely mistaken, if all or nearly all in a certain community do not belong, no one is not getting all they should out of this, or any association.

I sent out about 400 letters announcing this meeting and asked a few questions about conditions and prices, and I received just 26 answers.

Until every member gives the officers all the cooperation possible we will just drag along about where we are now. No organization ever grew by letting two or three members get all the new material.

I think if we get the extra appropriation asked for we should get busy and hold field meets in places where we can find a few beekeepers who will work up interest in their locality, and help them form local associations if possible.

I believe that if the inspectors will take a little time at each yard inspected and try to induce the owner to become members, it will help. I know when I was inspecting I would neglect to do this quite often.

I have the following remarks to make:

Appoint a press committee to have articles put in the news and farm papers and get the industry before the people.

Carry an ad in the journals telling the people where they can join the association.

Get some stickers printed and distribute them among the members to put on every letter—Join The State Association.

Have the dues so much flat, then if they want anything else let them have it at reduced rates, this to include supplies, queens, books, magazines, etc., if we can make arrangements for same.

If I am to remain secretary of this association I hope and expect to have the cooperation of every member; this is your association just as much as it is any one elses; let us get together this year and boost for at least 1,000 members, with all the beekeepers in this State I know it can be done and will be if we all pull together.

THE PRESIDENT.—I will appoint an auditing committee of two members, Mr. Kildow and Mr. Dadant, and we will have a few minutes' recess so that you who have not paid your dues can do so, and get acquainted with one another. I want Mr. King to take charge of the question box, and if any of you have anything you would like to ask, we would be glad to have it.

MR. KILDOW.—Before recess wouldn't it be well to find out just what they are going to pay for this next year, so there won't be any mistake about it?

THE PRESIDENT.—The secretary will have to explain what arrangement has been made in regard to dues. The dues are $1.50. It has been the custom heretofore to give some one of the bee journals with that dollar and a half; I think it is rather doubtful at the present time if we can do that, because that is the price of the bee journal. I do not know what Mr. Dadant has to say about that this morning.

MR. DADANT.—I am afraid it wouldn't be possible for us to make the rate we made last year. We will be willing to make the rate of one dollar for the association.

THE PRESIDENT.—As all of you know, printing, especially paper, such as the American Bee Journal or any of the bee journals is printed upon, is almost prohibitive. I suppose many of you wonder why that is true. I have gone into the paper situation in the last thirty days, and I found out that the Curtis Publishing Company and one other publishing company had bought the paper output for the next five years. There has been a shortage of paper pulp and a decrease in the number of mills running. I am telling you this so you will know Mr. Dadant is not arbitrary regarding that price.

MR. DADANT.—Three years ago I bought a carload of paper for five cents, and last summer I bought our supply and paid twenty-one and one-half cents, so you can see the difference in cost of the Journal.

MR. KILDOW.—Is it one dollar to the association members?

MR. DADANT.—Yes.

MR. KILDOW.—I think it would be a good plan to raise our fees twenty-five cents. I think it ought to be compulsory, when a man joins an association, that he take a paper. That is one of the best things that come from taking membership in the association. I think it would be well for us to raise our dues twenty-five cents and make it one dollar and seventy-five cents. That would make it include the amount of one bee journal.

THE PRESIDENT.—I don't know what Gleanings will do.

MR. KILDOW.—It is possible they will do it, so we can give them the American Bee Journal anyhow. I want one of the journals to go with the membership, for I think the beekeepers through the country need the journal as much as anything.

REV. MORPHIS.—When I was in this convention a year ago I thought I would join the organization. I kept waiting and waiting for somebody to ask me, and nobody asked me. I knew I was going to be very busy in the year now passed, in building a home. We have so much work on hand that I couldn't very well look forward to taking on new work. I want to joint the convention, and I want the paper. I would be in the dark if I should belong to an association in any kind of business—I have been for years interested in bees, but you know a preacher has a good many things to do, and bees are kind of unhandy to move, so I expect to start this year with some bees, and if I leave Farmingdale where I live now, I expect to leave the bees there for the next minister to take care of. I want to study about them, and I believe the preacher should take up the study of bees, for this is the only sweet that God has made, it is the only sweet He has made, as far as I know, for man's comfort and care, and I felt as I came to this meeting and heard these men talking, and from what I had read about bees, I felt like the Almighty intended us to take up this bee business and study the bee itself and study how to know something about it and get the best results. I don't think God made the bee just to make an insect, but for a noble purpose, and it should be the thought of all intelli-

gent people to take some interest in things created, that have been placed at our command for our comfort and blessing.

So before this meeting is over I hope to go home to my wife justified. I would like to belong to the association and get the bee journal and make a study of bees this summer. My friend and co-worker, Mr. Stone, I think will give me a good deal of instruction when I get started, but I would still like to read what other people say.

MR. C. S. BENNETT.—Brother Kildow suggests that the dues be raised twenty-five cents, and that would satisfy the Dadants. Now, how about the bee journals, should a fellow want another bee journal, would that be enough money to belong to the association, would it be enough to satisfy the other bee journals and take one of the other papers? That part of it is not quite clear to me.

THE PRESIDENT.—The one way to fix this is not to raise the dues. A man joins the association for so much money. If the man says, "I want the American Bee Journal;" shall we charge him twenty-five cents more, and if he wants two journals, shall we charge him so much for the two, as we have been doing in the last year? Very few members will refuse the paper if he gets it for twenty-five or fifty cents more. My friend Withrow suggests that we raise it and make it fifty cents extra. This is for your discretion. The executive committee of this society doesn't care to take this matter in hand arbitrarily and say what the price would be. The dues are one dollar and fifty cents, we raised this a year ago, so that we could give a paper to every member. The executive committee has seen fit to give a paper with the membership, we did that to make the membership a little more attractive.

MR. BENNETT.—I did not object to the dues, but I do object to being forced to take a certain paper.

THE PRESIDENT.—There is no intention on the part of this society to do that.

MR. STONE.—It is for you to choose whatever you want.

MR. STEWART.—Supposing you don't want the paper?

THE PRESIDENT.—If he doesn't want the paper it is my understanding he pays one dollar and a half.

MR. STEWART.—I don't want it rammed down my throat.

MR. KILDOW.—That is just what I am going to do. It is absolutely out of the question for a beekeeper to keep bees and not keep informed. That is why I say make him take it whether he wants it or not. It is an advantage to him and he ought to have it. And he must have it if he amounts to anything. If he doesn't want to read it you can't make him read it, but he ought to take a journal.

THE PRESIDENT.—If you try to change the dues the resolution has to lay over one year before the dues can be raised.

MR. KILDOW.—I suggest you charge a dollar and a half and let the executive committee furnish the paper at twenty-five cents.

THE PRESIDENT.—I think that is the solution of it.

MR. COPPIN.—The journals were the same price last year.

THE PRESIDENT.—Yes.

MR. COPPIN.—We got the American Bee Journal for twenty-five cents last year, I should think we would get Gleanings at the same price,

but if there is a bunch here that knows all there is about bee culture and do not want a journal, it wouldn't be right to compel them to take it. I for one would rather take one or both.

MR. BENNETT.—What about being compelled to take a certain journal?

THE PRESIDENT.—I agree with you on that thoroughly. We have had arrangements with three papers, the American Bee Journal, Gleanings In Bee Culture, and Domestic Beekeeping, are the only papers we have had arrangements with. I really think the same club offer, that is with the increase of twenty-five cents, would hold good with the other papers. About a month and a half ago I wrote to the Root people in regard to Gleanings; so I could have some definite information in regard to this meeting. They forwarded the letter to Ernest, who was in an automobile in Carolina, stuck in the mountains, and he was too busy to take it up, so I can't say definitely, but I think they generally meet any competition and I dare say they will meet this, as far as the bee journal is concerned. I am willing to stand by the decision to increase it twenty-five cents.

MR. WITHROW.—That twenty-five cents would be all right for one paper. I am not in favor of raising the dues any more than possible. They are already a dollar and a half, I understand, and we are not obliged to give them nything, but we do give them a choice of any one paper, but if they want two or more they will have to pay more money.

THE PRESIDENT.—Supposing a man took Gleanings for the dollar seventy-five, that is one dollar for Gleanings. If he wanted the American Bee Journal he would have to pay one dollar more, which is the same raise on both papers.

MR. STONE.—That would be three and a half for the two papers and the membership.

THE PRESIDENT.—The one dollar seventy-five is for one paper.

MR. STONE.—And another dollar will get both.

MR. WITHROW.—And a few members will take all three.

THE PRESIDENT.—Do you agree on the one dollar and seventy-five cents? All in favor that the dues and one paper shall be one dollar and seventy-five cents will signify it by the usual sign; contrary; carried.

The motion was recorded.

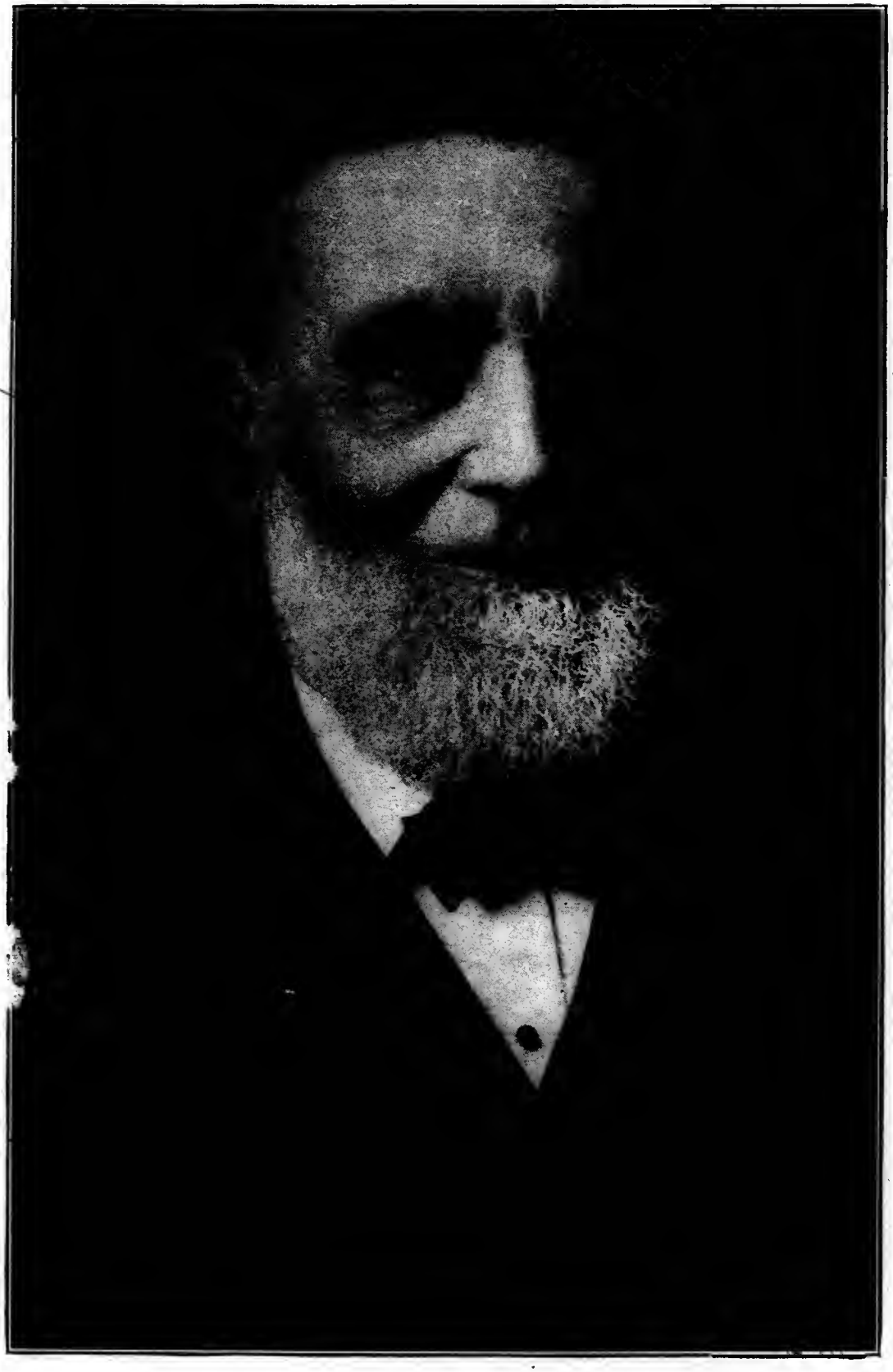
We will have a recess.

Whereupon the meeting adjourned for recess.

THE PRESIDENT.—Gentlemen, you will come to order. A committee on resolutions was appointed, which consisted of Mr. C. P. Dadant and Mr. Kildow, on the death of Dr. Miller. Mr. C. P. Dadant has been unable to be with us today, and his son is present and will read the resolution. Mr. Dadant.

Resolution concerning the death of Dr. C. C. Miller.

WHEREAS. The death of Dr. C. C. Miller, at the age of 89, has removed from our midst a venerated member of our State Association and one of the foremost beekeepers of all times, known in this country and abroad as a great writer, a man of genius and of the most kindly disposition; therefore, bt it



DR. C. C. MILLER.
1831—1920
Author of Fifty Years Among The Bees.

SITY LINOIS

Resolved, That we urge the beekeepers of the country to join us in organizing and subscribing a fund for some appropriate memorial preferably an endowment for the education and instruction of young beekeepers at the College of Agriculture;

That we profoundly regret the loss of this great and good man whose example will serve to encourage beekeepers for generations to come;

That we tender to his widow and to all the memebrs of his family and to his friends our sympathy;

That a copy of this resolution be sent to Mrs. Miller and that it be spread upon our published records.

Respectfully submitted,

C. P. DADANT,
A. L. KILDOW,
Committee.

MR. DADANT.—I move this resolution be adopted as read.

MR. KILDOW.—Second the motion.

THE PRESIDENT.—It has been moved and seconded that the resolution be adopted as read. All in favor signify by the usual sign.

The motion was unanimously carried.

THE PRESIDENT.—It is so ordered.

The next on the program is a paper by Mr. C. P. Dadant. I think the son will again have to stand in the shoes of the father.

MR. DADANT.—This paper is on making honey a staple. My father wanted it explained that he had written this three years ago, but he has never delivered it, and he thought it a good paper to read now, because he is pointing out what should be done in an emergency such as we are probably coming to in the honey situation now.

MAKING HONEY A STAPLE.

(C. P. Dadant.)

The beekeepers present at the meetings are always largely interested in the success of beekeeping, whether they be large producers, writers, publishers, queen breeders or dealers in honey or supplies. They are therefore interested, above all things, in making honey a staple upon the markets.

The present condition of the honey market is as abnormal as that of any other product. War disturbs all traffic and what is true of peace times may or may not be correct in war days. We therefore cannot rely on present conditions for a criterion of future possibilities. Honey was at a premium, so much so that one of our leading western beekeepers, Wesley Foster, wrote in the January number of Gleanings, page 39: "The high price of honey has cut down the local consumption at least one-half. Calls are quite frequent, but three times out of four the price spoils the sale. Nearly all the honey being sold at retail by the grocers is going at less than it is worth in car lots."

That the prices of honey were as abnormal as the price of sugar is evident. Old producers like myself are astounded at the quotations. When the committee appointed by the Chicago-Northwestern Association in 1916, to place a standard value upon the wholesale and retail prices of honey, had completed its work, and my son, L. C. Dadant, who was a member of that committee, told me that they had set the

price of extracted honey, in 10 pound packages, at $2.25, I made the assertion that no honey worth mentioning would be sold at that price, I acknowledge now that I was in error. My opinion was based upon long years of experience, but I had failed to take into consideration the fact that Europe was short of all sorts of produce, sweets as well as cereals. Honey retails there at prices ranging from 30 cents to $1 per pound, and in many locations it cannot be had at all. This is an abnormal condition and we cannot expect it to last beyond the end of the war.

Looking back over the past, from the time when Harbison began to harvest his enormous crops in California, we see honey produced in immense quantities and sold at so low a price that even the most practical beekeepers felt inclined to give up beekeeping. I remember the offer of a California dealer, in the eighties, of extracted honey in carload lots at 3 cents per pound, with 5 per cent discount for cash. The prices this man paid to the producers of this crop must have been unprofitable indeed. I have myself sold fine clover honey, thoroughly granulated, at what I consider an unprofitable price, 7 cents per pound, after having kept it for four or five years in the hope of securing a better price. This might have seemed fair enough to producers who shipped their honey to commission men, for even lower prices were being paid by dealers. But considering the fact that we had a large trade and were well-known to dealers and to a large circle of consumers, this was certainly too low.

In view of the unfortunate past and the too booming conditions of honey marketing, what can we expect from the future, when the abnormal conditions of war have subsided? Can we expect the present prices to continue? Will honey have become a staple then? I am afraid that neither of these questions can be answered in the affirmative.

That the price of honey is bound to decline when sugar scarcity is over and sugar again declines, it seems to me goes without saying. I do not believe that we can expect to secure, at wholesale, a price more than double the price of sugar, for the good grades of honey.

Past experiences induce me to believe, that, in normal times, such a price may prove profitable to the practical producer of extracted honey, if he can secure it readily, that is if honey becomes a market staple, of ready sale.

Here allow me to make a comparison between comb honey and extracted honey, as to the selling value of both. In 1881, we published a small pamphlet on the production of extracted honey in which we predicted that this would some day sell as readily as comb honey. But the years passed without any change, and comb honey continued to command from 50 to 100 per cent more than the extracted. We had entirely given up the expectation of more remunerative prices on extracted honey when this war brought about the change. From all sources now come statements that there is but little difference in the price obtained. Why is this? In my estimation, it is the European demand, coupled with a higher price, which caused this change. In Europe, for centuries, the best honey has been drained out of the combs, to preserve it in jars or pots. Indeed comb honey must be consumed within a year of its pro-

duction if we would have its best flavor. Its granulation in this shape is objectionable to everyone. But extracted honey, or honey that has been *strained* or *drained* out of the combs without heat and without impairment by the mixing with it of pollen or other undesirable substances, if well ripened and placed in air-tight receptacles, will preserve its quality for a much longer time. That is probably why the housekeepers of my young days, in Europe, took the trouble to strain all the honey out of the combs, before placing it upon the table. So we may look for a continuation of a nearer identity in prices of the two grades. On this matter also we find Mr. Foster assuming similar views to our own, for in the number of Gleanings already mentioned he says: "Next season will see the passing of Colorado as a comb honey producing state. Comb honey will be produced; but three-fourths of the total crop will be extracted." This is not astonishing when we remember that alfalfa honey, which is the principal crop of Colorado beekeeping granulates very readily in the comb. That fancy comb honey will always command a fancy price is not to be doubted, neither should we doubt that many people will always take it, even at a higher price. But the honey for the masses, the staple honey of the world, will be extracted honey. So it is on honey in this shape that we must figure for the product destined to be a staple.

What is necessary to make honey a staple, when war conditions no longer have an influence upon the market?

First, we should continue to urge what we have urged for a few years past, the value of honey as food, as compared with other sweets. It is hardly worth while for me here to expatiate upon this subject. We have done it in print at different times and hardly a number of our bee magazines appears without some reliable statements in favor of honey as compared with the best grades of sugar or with the cheap syrups. We have ourselves scattered close to 200,000 leaflets explaining not only how honey is produced and extracted but also its greater value as food than that of many other food products, as detailed by Professor Barney, of Iowa. Our old friend Dr. Miller is lavish in his praise of honey as health food and sets a living example of the truth of his remarks by continuing to keep healthy and continuing to consume honey largely in his eighty-seventh year. The United Honey Producers, for several years, urged the teaching of the healthfulness of honey in the public schools. This is an important matter which should be taken up by each State Beekeepers' Association, or if it were possible, by the National Association. But so large an amount of funds would be needed for this purpose that it is going to be some time before a concerted effort is made throughout the country by the beekeepers to secure recognition. The matter must be put forward in a practical way, with the help of the best talent that the beekeepers can secure. When we go to the professors and superintendents of the country schools, we must do it in a way that will command attention and consideration, for a question badly presented is beaten before it is heard.

Are we in doubt about the possibility of honey ever being taken seriously as a staple? Why should we be, if the facts are made known

to the public? Did you ever stop to think how few people know anything about what honey is, its varying color, its varying taste, as it is gathered from the different flowers? We still have many beekeepers and dealers who do not consider it worth while to present honey to the public in the granulated form. They go to a great deal of trouble to liquefy it, to blend it so that it may always look the same and taste the same, though you and I know very well that it cannot always be done, for there is too much difference between some grades and some others.

Why do they do this? Because they realize that only a very small portion of the population of the country actually knows that honey does granulate and that granulated honey is usually pure. Because they realize that most consumers, after eating of one grade of honey and finding it good, will mistrust all other grades and think them adulterations. So the public is ignorant, yes, in *dense ignorance,* say it loudly, of the merest facts about honey. Yet some of us expect to sell honey readily to the public. Have you not met hundreds of people who believe, who think they positively know, that comb honey can be manufactured and sealed over artificially? Have you not met people who, after eating amber honey, are entirely incredulous of white honey being *honey* at all? Are there not thousands who believe that buckwheat honey is the very best honey in existence?

Why do people at large have such ridiculous ideas concerning an every day fact, if it is not that their education has been neglected?

Is there any difficulty in getting *facts* before the people, in this enlightened age? Not if you are numerous enough and strenuous enough to make the facts known. Did they not use to think that whiskey was a food? And now whiskey bids fair to be relegated to oblivion. Did not our western pioneers assimilate *olive* oil with *castor* oil? And now they relish their salads with the finest grades of olive oil. I remember when, in my young days, I thought tomatoes were a pretty fruit, but unfit for consumption. I now like them so well that I would gladly see them on the table at every meal.

Why did glucose, corn syrup take so well, even when it was so poorly made as to be actually injurious to the health? Because the manufacturers saw so much profit in it that they spent tens of thousands of dollars in advertising it. Although it has not over a third of the sweetening or nourishing value of honey, yet many people imagine that it is better than honey.

It is going to cost us something to let the people learn of the actual value of honey, of its appearance and conditions, of the healthfulness of granulated honey. But sooner or later we will teach them. Just how long we will delay this matter may depend upon very insignificant conditions. Many of us think we cannot afford to spend as much as it will require to make honey a staple. Let us see.

We are told that the United States probably produce 300 million pounds of honey annually. But let us say that the country only produces one tenth of that amount, or 30 million pounds. Let us say that, of that amount, only half is produced by practical and progressive beekeepers, who are desirous of making honey a staple. Would they be

willing to spend a tenth of a cent per pound for a few years in order to reach the result that would enhance the value of honey for good? This would produce $15,000 for advertising annually.

I am not writing this to urge beekeepers to subscribe to such a fund. But we are in a new era. The world is beginning to recognize that in order to succeed we must be united. Uncle Sam has taken over the food situation, imitating in this the countries at war who know that efficiency is in association. We are going to associate more and more. I feel very much inclined to predict that the time is not very distant when the beekeepers of the country will associate to teach the nation the value of honey.

One more thing. If we expect to make honey a staple, we must produce enough of it to keep some on hand at all times for the requirements of the trade. We must also produce it cheaply enough to retain the customers after they have begun using it. I can understand very readily that farmers would like to get $2.50 a bushel for wheat, 80 cents for oats, and $1.50 for corn, constantly hereafter. But this is not any more likely than 18 cent hogs. Neither are we likely to obtain 25 to 30 cents for our honey all the time.

So we must learn to produce honey largely and by the most economical methods, so that it may cost us as little as possible. I have no patience with the man who thinks he knows just what to do and who does not think he can learn anything at a bee convention; for it is at these conventions that we every year learn new methods and more economical details of production.

Neither have I any patience with the man who thinks that there are already too many honey producers and that the only way to succeed is to discourage others from going into beekeeping, that the true progress is in shortening the crops to secure more profit for those who are already producing. There are billions of pounds of honey going to waste every year for want of bees and beekeepers. Millions of people never have any occasion to taste of honey. I believe that the future of mankind is in producing as much as we can for the foods, the textiles, the metals, so that all things needed by man may be plentiful.

Our present generation, or a part of it at least, has become insane enough to be bent upon destroying all it can of man's necessities. But this is not going to last and we will learn the lesson of human happiness, through unlimited production instead of unlimited destruction. (Applause.)

THE PRESIDENT.—Gentlemen, this paper is open for discussion. It is a very good paper, really too good to discuss. We would like to hear from Mr. King, of the question box.

MR. KING.—"Does raising queens from cells built in preparation for swarming increase the swarming impulse?"

THE PRESIDENT.—I take it this question means if you take a queen raised from a cell built under the swarming impulse, will the swarming impulse be accentuated in the bees developed from that queen?

MR. COPPIN.—I don't think that will have anything to do with the generation of bees.

THE PRESIDENT.—I can't see that it would have any bearing whatever on the bees—I think not.

MR. KILDOW.—That is my impression. I can't prove it one way or the other, but that is the impression I have from my experience.

THE PRESIDENT.—It is simply a natural method for the bees to increase.

THE PRESIDENT.—Let us proceed with the next question.

MR. KING.—Q. How many colonies should be kept in one yard around Litchfield, Illinois? That is about twenty-five miles south of here.

MR. KILDOW.—That is very indefinite.

THE PRESIDENT.—That is something I don't believe any man could answer unless he lived in the immediate vicinity of the man that asked this question. There are some localities in which many colonies could be kept, and in other localities none. I couldn't say how many could be kept in this locality. It would depend upon whether it was all cultivated land, whether there were creek bottoms and river beds.

MR. COPPIN.—Does anyone know the conditions in that locality, whether there is sweet clover there?

MR. DADANT.—I think we could be safe in saying not over one hundred colonies.

THE PRESIDENT.—That is safe almost anywhere.

MR. KING.—I have another question. "Should the new State constitution have a section in it to pay full value for each colony of bees killed, which have foul brood?"

THE PRESIDENT.—That is your answer?

MR. KING.—Yes.

QUESTION.—Does that mean being destroyed by the apiary inspector?

MR. KING.—That is the way I understand it.

MR. KILDOW.—I don't think he ought to have anything for it. I don't think there ought to be such a section in the new constitution, for the reason that a colony with foul brood is worthless, and the man shouldn't get something for nothing. They pollute the neighborhood, they are really a detriment and shouldn't be paid for, that is the idea of the thing.

MR. COPPIN.—I think we would be better off without that clause, because I think the beekeepers are careless enough now, and I think they would be a great deal more so if they were to get paid for what was destroyed by foul brood, so I think it is better to leave it stand as it is.

MR. BOYER.—I think he should be fined for keeping them instead of receiving money because they were killed.

MR. KING.—Another question: Is there any food value in beeswax?

THE PRESIDENT.—Does anyone care to answer that?

THE SECRETARY.—You are about the only one that could answer that question effectively.

THE PRESIDENT.—How many of you read an article in Gleanings, September issue I believe it was, on the food value of comb and extracted

honey? I think possibly the one that asked this question had read it. From that article you would gather that beeswax had a slight food value, and it seems to be the concensus of all food experts and chemists that beeswax has a slight food value, due to a digestible or soluble fat content, which in that paper was called a vitamine. That is not a water soluble, but it is soluble in the digestive juices of the human body or animal body. How much that food value is I can't tell you. I don't know that they can tell you, but it has a food value, and of course under that theory the comb honey would have a greater food value than extracted honey. If a man was put upon extracted honey, and another upon comb honey, the one that was fed the comb honey would live the longest.

A MEMBER.—It is all from the same material, isn't it?

THE PRESIDENT.—No, the increased food value is not in the honey. The honey you are feeding as extracted honey is a carbohydrate. If you were to feed that article alone, that animal in your experiment would die, because it is not a balanced ration. The other animal that you feed the comb honey have something in the beeswax which is a fat content, more than you would have in the extracted, consequently lives the longest.

MR. KING.—I have another question: What is the cause of the white clover honey failure of the last two years?

MR. KILDOW.—There are two causes. One is because there wasn't any clover to speak of. The other is that as far as I could see there must have been some atmospheric conditions that were not just right.

THE PRESIDENT.—First, why was there a failure in the growth of the clover?

MR. KILDOW.—The only thing I can see is the dry fall, or a dry summer, that killed the plants that came in the spring, and no rainfall to bring it on. When there is plenty of clover in a locality there must be atmospheric conditions, because in lots of territories we have white clover that is perfectly white with bloom, and there is no bees on it.

THE PRESIDENT.—In that atmospheric condition you probably mean that in most of our clover plants the oozing of the nectar takes place during the night. Most of the time these clover plants failed we did not have a warm night. The nights were rather cool. In quite a few instances there is a great deal of dew, and you never find bees bothering clover following a night like that. Good corn-growing weather is good honey weather providing you have a crop of clover.

QUESTION.—Is there any way to know at the beginning of white clover bloom, before the bees begin to work, is there any way of knowing whether you are going to have a white clover honey flow or not?

THE PRESIDENT.—You mean whether that white clover present will yield or not? No, I think not, because atmospheric conditions vary from day to day.

MR. LINKE.—In this locality that is mentioned we have more white clover this year than we have had for the last three or four years, and lots of alsike clover too.

THE PRESIDENT.—Did the alsike yield?

MR. LINKE.—I believe we got more from the red clover.

MR. TAYLOR.—I would like to ask the gentleman if they had many dews about that time?

MR. LINKE.—We had lots of rain, floods.

MR. TAYLOR.—That is not dew. We had a few scattering days during our honey flow that we had honey to flow, that is some bees working on the white clover, but they were the days following the morning that there were dews. Any atmospheric conditions that will produce dews will produce honey.

THE PRESIDENT.—A hot sultry night is the best atmospheric condition.

MR. BOYER.—Where I live, at Champaign, and near Urbana, in the north part of Champaign there is a man named Mayers, who has sixty colonies of bees. Within two or three miles of him there is forty acres of alsike clover, and there was one continuous roar of bees from his hives to that clover. Not far from there was another white clover field where you couldn't find a bee on it, so far as I could detect the clover was of the same kind. Why did one field give honey and the other not give any?

A MEMBER.—Did you observe this condition just one day?

MR. BOYER.—No, for several days.

THE PRESIDENT.—I noticed last summer when I drove through your country, having been up the east side of the State, there was that much difference in everything there. It seems that there was a dividing line; west of the line everything seemed pretty poor, and east of it was a good crop.

THE SECRETARY.—Last year the rain fell on one forty acres and the sun shone on the next one.

MR. BENNETT.—Isn't it a fact that bees in a certain location do well and others a mile from there will make a great deal less honey?

THE PRESIDENT.—Yes. The next on the program is Mr. Bender. Mr. Bender's children are ill, and he has sent the paper in. I am going to ask Mr. Kildow to read it.

THE QUESTION OF SUPPLIES.

(By C. F. Bender.)

Having been called upon for a paper to be read before this convention, it seemed to me that a full discussion of this subject from the beekeeper's standpoint might be of interest. I wish to assure you at the outset, that I am in no way interested in the sale of bee supplies, but view the matter solely as a purchaser. Having decided upon my own policy with regard to the purchase of supplies for the coming season, it may be useful to give you the facts and fancies on which that decision is based.

I have just returned from a month's vacation in which I visited some of the larger supply factories, making a leisurely visit at each; with a view to learning present conditions, as well as future prospects. I will confess that I went as a missionary to these benighted brethren

saying—Lo, the poor bee man. How is he to pay war prices for his supplies, and take a chance on selling his honey next fall?

I was surprised to find that they were already true believers. They knew all that I had to tell, and much more. Instead of darkly plotting how they were to keep up the prices of supplies, they were anxiously and even prayerfully considering how these prices might be reduced. Thy taught me that the factories must be run through the winter, if the demand next summer is to be supplied; that if they are run through this winter, materials and labor must be purchased at prices that average less than ten per cent below the highest war prices. Coal and iron, lumber, beeswax, labor, were still selling at astonishing prices. Freight rates on those materials were higher than ever before. Taxes were a burden, intrest on borrowd capital unusually high, and in many cases borrowed money was not to be had at any price. Considering all these things, it would be folly to store a large stock of supplies, in the hope of selling them next summer. The only course left was to run the factories shorthanded, storing only such a stock as would certainly be sold, at nearly the present level of prices. This in the hope, not of making a large profit, but of avoiding a heavy loss.

It seems to me that our problem, while apparently the same as that of the manufacturers, is really different, because the labor employed is largely our own. Unless we are to abandon our business entirely, it will not profit us to limit the production of honey because our supplies cost us twenty per cent more than they will probably cost us a year later. It will not even pay us to limit increase on account of the high price of hives, because the net profit per colony for one season will more than cover any probable reduction in the price of hives during that year.

If these statements are accepted as facts, thereonly remains for us one possible question. Shall we buy our supplies now, so far as we can foresee our needs, or shall we wait until Spring or Summer, in the hope of getting them cheaper? In my mind that question also, is easily answered. I have tried to show you that the factories and dealers are carrying only small stocks, and that a normal demand during the busy season cannot be supplied. Consequently, if we wait until the last moment, there is danger, not only that we shall be obliged to pay higher prices, but that we shall not get our supplies at all.

Our only consolations are, that we have used some low priced supplies in the production of high priced honey—that, as we have gone up with the commercial balloon, we must come down as it cools off, as other producers are doing; and must content ourselves with reduced profits, hoping for better times in the years to come.

My prediction is, that the lowest prices for supplies during the year will be those quoted in the January catalogues. Acting on that belief, I have already ordered my supplies for the next season, and expect to do business at the old stand, in quite the usual manner, in nineteen twenty-one. (Applause.)

THE PRESIDENT.—Any comments on this paper?

THE PRESIDENT.—Any questions, Mr. King?

MR. KING.—When you give a colony two stories for brood until the honey flow, must there be an extra story for drawn combs, or can it be foundation?

A MEMBER.—You can do either. It depends on what you want to do. I take it for granted you want to know what you should do to the second story to give a double brood chamber and produce—is it comb honey?

MR. KING.—He didn't say.

THE PRESIDENT.—He would probably, if he gave full comb have the queen up to lay a little quicker than if he gave foundation.

QUESTION.—How is he going to get his foundation drawn?

MR. ATKINS.—With the idea of giving the queen more room for egg laying in a short time after it was put on, it might be advisable to put a drawn comb up from below.

THE PRESIDENT.—I think it would be the concensus of the beekeepers present, if he had the drawn combs, to give the drawn comb.

MR. ATKINS.—Of course it shouldn't be done too early.

THE PRESIDENT.—We are taking it for granted he knows that. If there are no more questions we will adjourn for dinner until one-thirty, in this room.

Whereupon the meeting was adjourned to meet at one-thirty P. M.

TUESDAY AFTERNOON SESSION.

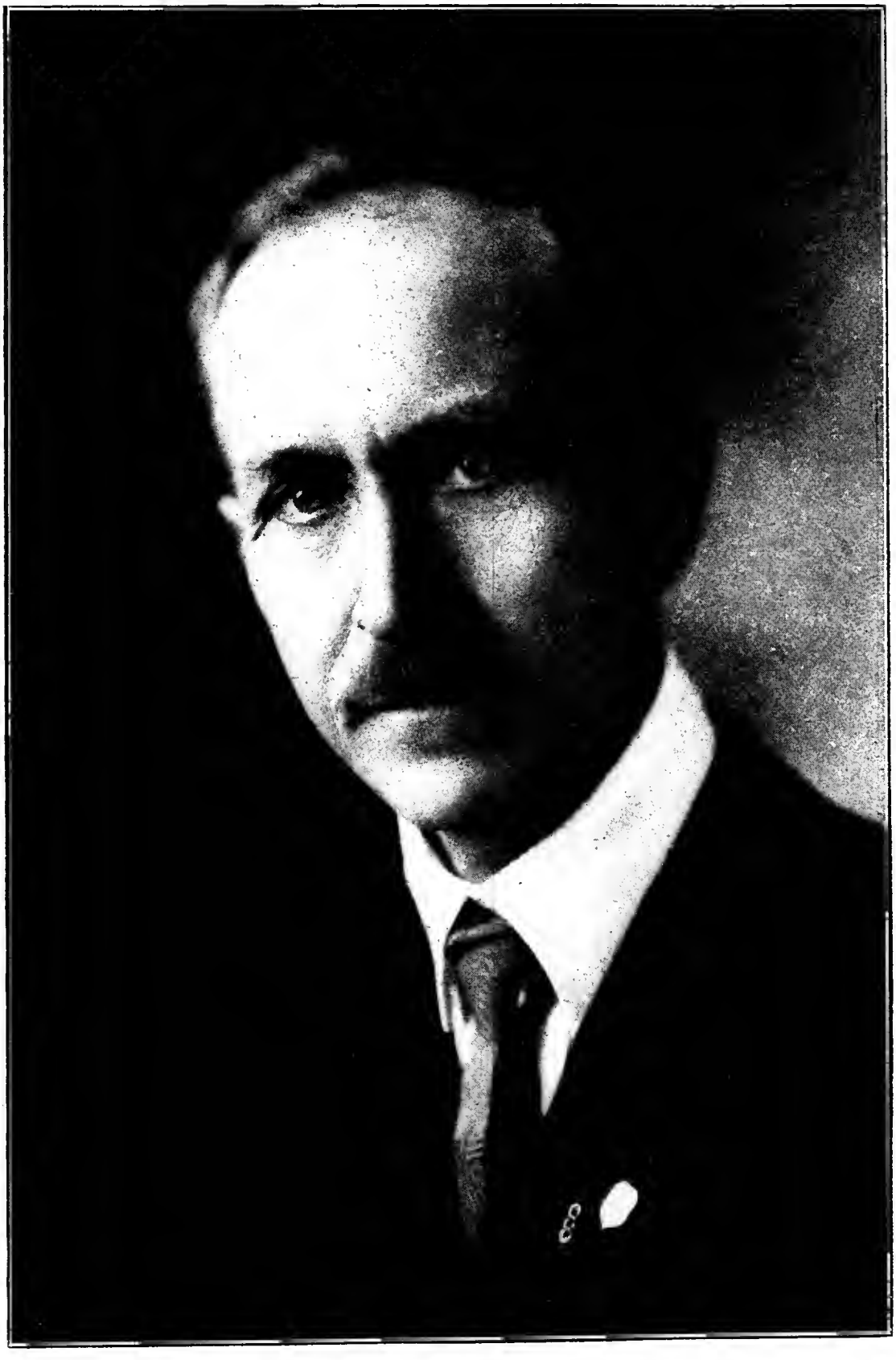
THE PRESIDENT.—Gentlemen, will you come to order? Mr. Kildow, we will have the report of the State inspector of apiaries at this time.

MR. KILDOW.—Gentlemen, I am not going to burden you with very much of a report. I will give you just a little offhand report. The full report you will get in the printed proceedings.

To begin with, this spring I tried to do some work in the south part of the State, before our work would be ready in the north, but if you will all remember the kind of a spring we have had, it was almost impossible to do anything. I have made three trips, and I don't get enough done in all those three trips for one regular trip.

When I reached the south part of the State, I found that with the rain and snow and bad weather it was almost impossible do to any inspection, but I did quite a little talking, and we did a little good, probably, in that way, and when the weather did get so we could do anything, we made the examination.

Then during the season we made our calls, principally at those places where we got word or where they wanted us to come, so during the season the work has been principally on calls. Very few new localities have been gone into. The calls have kept us going whenever an inspector could afford to be out. You are all aware that under the per diem the inspector gets four dollars a day, he couldn't afford to go out any time the call happened to come in. Our work was confined mostly to calls throughout the State. We went into very few new localities, and as we were only getting four dollars a day it was a pretty hard



A. L. KILDOW,

State Inspector of Apiaries.

matter for an inspector to get up and go the minute he got a call, and neglect his own business, but we succeeded in getting over the territory pretty well.

I think it did considerable good. We had a few field meets, one at my place in September. This was on the spur of the moment, you might say. I tried to get other meetings throughthe State, through the summer, but that seemed to be impossible. At the last moment I told the doctor I was going to have one at my place, so I called one for September tenth, and I think we had a very good meeting, good speakers, and the program was very good, and we had quite a good attendance and there appeared to be a good deal of interest taken.

We had a meeting and organized an association at Edwardsville. They are taking considerable interest there, and succeeded in organizing a very good county association, called the Madison County Beekeepers' Association. Later in the season we organized another one at Cambridge, Illinois, Henry County. We had quite a little meeting there. In fact they got woke up the year before, but they couldn't quite perfect their organization until last fall. Now they are taking quite a little interest there, and probably will have several meetings during the winter, to talk over this meeting and get better posted.

I was called to Carbondale this fall. I made two trips there. They are getting interested and probably by this time they have organized. I know their man told me last week at Chicago they thought they would be organized in a few days, so they are getting woke up down there, and they feel they need organization pretty bad, and it is only a matter of a few years till they will be pretty well organized through that section of the country.

MR. STEWART.—Hasn't the price of honey done more to wake them up than anything else?

MR. KILDOW.—I don't know. The price probably has some effect upon them. That is about all the off-hand talk I have to give you. I will give you the figures in round numbers, of what we have done.

We didn't examine as many colonies and apiaries as we did last year, for the reason we only went where we were called. This year we confined all or practically all our going to calls, on account of the scarcity of inspectors. If there are any questions you would like to ask, I will be glad to hear them.

MR. STEWART.—Isn't it a fact that nature is killing out more foul brood than you do?

MR. KILDOW.—I couldn't tell you. That would be a pretty hard matter to answer.

THE PRESIDENT.—What do you mean by nature?

MR. STEWART.—Die of their own accord.

MR. KILDOW.—No, I won't agree with you. There is not a great per cent die of their own will, as you might call it. Nowadays they are being treated. There are a few beekeepers who have had bees a good many years, that let their colonies die, but there is not a large per cent who do that. If you want to ask anything, if I know it I will tell you.

THE PRESIDENT.—Don't be afraid to ask him anything that may be of interest to you.

Date.	Number colonies.	Number visit apiaries.	Number diseased.	Number A. F. B.	Number E. F. B.	Number days.	Expense.	Supplies postage.	Per diem.	
1919.										
November	40	3				7	$17 68	$0 60	$28 00	Inspector.
December						3	13 16	2 00	12 00	Inspector.
State Beekeepers' Convention.										
1920.										
February						2		2 00	8 00	Inspector.
Office work.										
March	90	3	3	3		6	14 88		24 00	Inspector.
March						1	1 88		4 00	Deputy.
With Inspector for Instruction.										
April	350	18	2	2		19	39 30	2 00	76 00	Inspector.
April	235	7	2		2	8	8 77		32 00	Deputies.
May	125	5	1	1		8	14 97		32 00	Inspector.
May	1,117	68	11	9	2	30	57 62		120 00	Deputies.
June	12	1				5		1 00	20 00	Inspector.
Instruction Work.										
June	1,061	62	16	7	9	32	78 96		128 00	Deputies.
July	995	28	11	6	5	16	35 05	1 85	64 00	Inspector.
July	1,270	47	14	10	4	27	48 33		108 00	Deputies.
August	570	30	2	1	1	17	51 80	1 85		Inspector.
Instruction State Fair.						4				
August	403	46	22	21	1	28	27 73		112 00	Deputies.
September	190	7	3	2	1	15	33 88	1 25	60 00	Inspector.
September	1,216	58	16	11	5	19	42 05		76 00	Deputies.
October	200	9	5	5		17	57 87	4 00	68 00	Inspector.
Total	7,774	392	108	78	30	264	$543 93	$16 55	$1,056 00	

MR. KILDOW.—As Dr. Miller said, what is the use of knowing so much if so much of it ain't so?

MR. COPPIN.—Isn't it a fact that there are bees that are treated where the disease is not cured?

MR. KILDOW.—That is a fact.

MR. STEWART.—We will always have foul brood.

MR. KILDOW.—That is my impression.

A MEMBER.—Not in this section.

THE PRESIDENT.—That matter of always having disease among bees or any other animal might be applied as well to diseases of the human race. We have always had certain diseases, we probably always will have. We have always had smallpox, as far back as the history of man goes. No one reached the adult age without having it, but now they have vaccination, the disease has been eliminated, there are very few men in this room that have had smallpox. I doubt if there is any but one that I know of. Under this man's argument you would let them all have it, let all the bees have foul brood and die. That is a poor theory. Why should you let disease run rampant without having your inspector to educate the man, for that is realy what he does to confine it. Here is a man that has an apiary with more bees than any man in the country, and he has never had foul brood among his bees. He wouldn't have careless beekeepers around him. But there is a tendency among a certain class of people, to say, what is the use, the thing is here. They have got to have it anyway, like a man taking his children out and exposing them to scarlet fever, because he would rather they would have it when little than when they are big. Smallpox is not a disease of filth. It doesn't arise from filth. I know two houses in this town who have it today, who are the very best class of people that we have, but they went on a picnic and came incontact with people who had it. It was carried from one to the other.

MR. KILDOW.—The question will we ever get rid of foul brood, was asked me a year ago at a Rockford convention. I said I didn't think it ever would be entirely eradicated. He thought it was rather strange that an inspector should give that kind of report, but I believe it is a fact that we never will get rid of it. It will be here, there, or some place, but we can control it, and that is all we are trying to do, and the better we can control it the better off we are. I don't think we will ever get rid of it, but we can get it down where we can handle it.

MR. COPPIN.—I am one that would be in favor of trying to control the disease.

THE PRESIDENT.—That is all right.

MR. KILDOW.—Yes, we are trying to get rid of it.

MR. COPPIN.—I think we ought to have one treatment that would answer for European or American, either one. But the way it is, they are treating the disease, treating for European or the American, and in lots of cases they do not get rid of it. They are still at it. One fellow will blame his neighbors, although he has no proof his neighbor was the cause of it. A man in the city will blame parties for shipping in honey and throwing out containers, although he has no proof his bees get it from there. I have tried for a number of years, and I find it is

very hard to get rid of it. I believe the safest way would be to have just one treatment that would answer, either for European or the American. That would be to kill the queen, as well as transfer them. They are so similar in many ways that it is hard to tell the difference between the two diseases. The inspector will show them the difference in the disease. Still I was in an apiary with an inspector; he took out a number and looked at it, I asked him what he called that, he said he called that "pickle" brood. "What do you call this?" "European foul brood." I took a toothpick and pulled out some cap, and showed him the American, so there were three diseases in the same comb. So that it is pretty hard to tell. You pronounce it either European or the American; there may be a little of both. If you treat for one, you still have it.

MR. KILDOW.—That is all quite possible, yet if we can get our people through in their treatment we wouldn't have to be much trouble. I think there is more disease scattered by careless manipulation of the treatment than by any other means. I know a man who sometimes keeps bees in a house, but when he wants to treat a colony of bees, he takes it in the house and sets it up on a place and lets the bees fly out and come back in, in any colony they want to. That is how he gets the bees out of his foul brood colony.

MR. STEWART.—It is a very good plan if you are situated so you can do it. I don't know sometimes but it is a good plan to get rid of brood. He loses what young brood there is in the hive. Sometimes I think if we would burn the old hive and bees when we first find them, it would be the best thing that we could do, but it is sometimes hard to get the people to do that.

MR. BISHOP.—Don't you think there is a good deal of disease contracted by the comb, in melting it down from one location to another, for instance, in gunny sacks.

MR. KILDOW.—All these little things are possible but not probable.

THE PRESIDENT.—Probably Mr. Dadant could answer that question.

MR. DADANT.—I would say it depends upon your beekeeper. A man that is a good beekeeper won't ship combs with honey in them, still worse, he won't ship anything that has foul brood. We have handled combs to some extent and we do not have any trouble keeping our colonies clean. There is a possibility, though.

THE PRESIDENT.—I will read Mr. Stewart's treatment, so you can all discuss it.

HOW I HANDLE AMERICAN FOUL BROOD.

After dark quietly pick up the diseased hive and without disturbing the bees carry it into the shop, from which let the bees go out through a bee escape in a window. Authorities tell us that a bee carries no honey when leaving its hive, and beekeepers know that any bee can enter any hive it wants to when there is no attempt to force it in. When the bees are all out of the hive melt the combs, boil the brood frames a few minutes, and then use the hive and frames again. This is much better

than the shaking method, for any beekeeper knows that when we shake bees many of them crawl into the clothing, and it is possible that those who have authority to inspect and shake bees thus scatter more disease than they eradicate as a result of the shaking treatment. Disease laden bees may thus be carried long distances into localities where there is no disease, and when one of them leaves the clothing and enters a hive the owner at once has American foul brood in his bees.

These ideas are for beekeepers who do their own thinking.

MR. KILDOW.—It is very seldom you will carry bees in your clothing very far.

A MEMBER.—When you go to a farmhouse and a man has bees in boxes and just any kind of a container that he can place a swarm of bees in, and he happens to have foul brood, how would you go about it to get that man to clean up that foul brood, and how does he do it?

MR. KILDOW.—The law reads very plain.

MR. BENNETT.—But when you approach him he will tell you if you want the queen caged you can go ahead and cage her.

MR. KILDOW.—It is pretty hard to lay down any ironclad rule when you go into a man's place. You have got to judge your man, talk to him and go according to your best judgment. Go at him a little easy till you find out what he is made of. I can't lay down an iron-clad rule. I might tell you what I would do after I had talked with him a few minutes, but I couldn't here, because I go according to the man. If I think a man will be hostile, I may be a little bit rougher to him, but if he is inclined to take my instructions I change my plans entirely. The way for you to do is to get into them and then go according to what you find.

MR. BENNETT.—I do not proporse to treat other people's bees free of charge or anything like that, but any amount of people in the country have bees on straight combs.

MR. KILDOW.—Try to tell him the best way to do and then see that he does it.

MR. BENNETT.—I think we should insist on the law to compel people to place their bees on combs that could be handled.

MR. KILDOW—The law says you must have them so an inspector can look at them.

THE PRESIDENT.—Our lawmakers have always contended—and under the present constitution—I think the one we have now will still be the constitution for quite a while, that you couldn't compel a man to keep his bees in a certain kind of hive any more than you could compel a man to keep his cows in a certain kind of barn.

MR. KILDOW.—The law says you must keep them so the inspector can examine them.

THE PRESIDENT.—It isn't a question of what the work is. It is a question of the underlying principle involved in the law.

MR. KILDOW.—The law gives it to you so you can work it out pretty well, for if they are not in the kind of hive where you can look at them, you have got to get them there.

THE PRESIDENT.—Suppose you compel the man to keep them in a movable frame and he doesn't use foundation, you are just as bad off as before.

MR. BENNETT.—They have the old-fashioned diamond hives in my part of the country.

MR. KILDOW.—There are very few box hives now. They don't worry me as much as the shiftless beekeeper. He is the source of trouble. I can learn things by you asking questions. It helps me and it helps the other inspector.

MR. COPPIN.—This is the main question according to my belief: This disease among bees, if we can find out any method of getting rid of it we want to do it.

MRS. KILDOW.—Everlasting vigilance will get rid of anything.

MR. KILDOW.—Another thing, this is the time this winter when our legislature meets, and we want some more money. We want it so we can pay your inspector enough so that he can afford to go out and do work. We want to pay him more than a common day laborer that will take a shovel and go out and work. He has put a good many years in it to learn this thing, and you can't expect him to work for less than a common day laborer. We have done this the last three or four years, and it is uphill business. We are merely giving our time for nothing, and paying a little besides, so we ask for an appropriation increase and change of law in regard to the per diem. And we want all you beekeepers in Illinois to write your representative and senator and ask him to vote for the beekeepers' appropriation at this session.

THE PRESIDENT.—That comes through the change in the budget.

MR. BENNETT.—How much is it now?

MR. KILDOW.—We are now getting two thousand a year, but they tie it up so you can't use it well. They divide it up. We are not allowed to take from one fund to the other. Since the war started, we had to make an estimate of so much expense. You know where expenses have gone in the last few years, and we can't change that a bit. It is the same way with the per diem. We can't change anything. We have had to be very careful to make our expense do the little work we have done through the year. This time, I think, by the first of next July, we will have it all spent, the per diem and the expense, too. It is pretty hard twisting around, though, to get it. We have got to make our expenses come up to the times, and we have got to have our per diem come up to the times. We want a per diem so we can get good inspectors and pay a fair price for the ones we now have. So I would like you to write your senator and representative, so when this thing comes up it can be put through. We have been trying to get along the best way we can till we could get adequate wages.

THE PRESIDENT.—We have a gentleman here today who represents the Lewis people, manufacturers of beehives. Beware where you buy your beeware. I would like to hear from Mr. Atkinson on this subject of foul brood.

MR. B. W. ATKINSON.—Mr. President and beekeepers: I have listened with a good deal of interest to your discussion on foul brood, as

I have had some experience in foul brood and inspection work in Canada, and seen the workings of different foul brood laws in different states in the United States, and I would like to say a few words about the behavior of these two diseases, and try and point out the importance of being extremely careful in the method of treatment of these two diseases. In the first place, and as you all know, the diseases are caused by bacterial germs. The germ which causes American foul brood and the germ which causes European foul brood are entirely different in their habits. For instance, the germ that causes American foul brood is what they call a spore former. In other words, when unfavorable conditions arise for the germ to exist instead of dying, it forms a spore, which is in reality a hard, coated seed, and in that condition the disease may exist indefinitely. We have had combs around the United States Department Laboratory of Beekeeping, for the past five or six years with these pieces of American foul brood in, and they have made cultures of those and inoculated colonies and the disease has appeared in colonies inoculated that way. A European foul brood germ doesn't apparently form a spore and the germ in this field is comparatively shortlived.

Dr. White has found the germ lives about twelve days in a scale in a dark place, whereas if it is exposed to sunlight it dies in a comparatively short time. It will exist in a dry condition longer than it will in a moist condition, and in honey it may only live two or three months in a dark place, but in the light it will live only a few days.

In working with these two diseases it is very important to distinguish one from the other. In typical cases it is easy enough to do that, but in advanced cases of European foul brood we very often have symptoms which are extremely like American foul brood. In fact, out in California there is so much confusion between the two diseases that some of the beekeepers out there say that European foul brood evidently develops into American foul brood, which of course is entirely wrong. This comes about, so Doctor White says, owing to the fact that when European foul brood becomes serious there is a secondary germ gets in with the European foul brood and the presence of this secondary germ seems to delay the death of the larva. Then instead of it dying as it does in typical European foul brood the larvae lengthens out in the cell and dies about the same age as when affected with American foul brood.

As you know, it lengthens out in th cell, and the bees usually put the capping of wax over it as in the case of American foul brood, and in this advanced case of European foul brood it does the very same thing, and in that condition it is rather hard to tell, because it also ropes out to a considerable degree, but if you look carefully, very often if you get a real case, one that is advanced just far enough and yet not too far—you understand that these diseases advance when the larvae first becomes infected, it turns sick and you could hardly tell there was anything the matter with it unless you examine it very carefully. It dies and gradually dries right down, so there are various stages, but if you get a typical case of European foul brood in the advanced stage, and insert a toothpick, you will find it will rope out. This ropiness in most

cases will not be as fine or thread-like, as in the case of American foul brood. It is more quickly treated. In addition to that, instead of it being fine in consistency like glue, as the American foul brood, it is grainier or has more lumps, and when you have gone so far in stretching it out it breaks off. Instead of it dropping back in the cell in most cases it slopes down over the fronts of the cell. That is the European foul brood. The American foul brood has a fine rope, is more thread-like and will usually stretch out further, and when it breaks off drops back into the cell again.

However, if you are not absolutely sure—and sometimes it is very hard, especially if there is a considerable number of cells to judge from, the best thing to do is to cut out a good sized sample and send it to Dr. Phillips. You will make an examination under the miscroscope, and in those cases you can tell which disease you have.

That is extremely important, because the two diseases require different treatment. In most parts of the country, and I believe it will be true in Illinois, European foul brood is not a serious disease where good methods of beekeeping are practiced. In other words, usually what will produce a maximum crop of honey will keep European foul brood from becoming serious, so if a colony is shaken for European foul brood in many cases you do more harm than good, because by the shaking method you awaken the colony, because the brood is taken away.

The first thing to do in treating European foul brood is to unite old weak colonies, make them strong. That is particularly true in the spring. Of course weak colonies are of so very little importance to you anyway, when it comes to getting a crop of honey.

Next thing, you should put in a good, big young Italian queen. If the disease is bad and there is no honey comb in, it is also helpful to feed a little sugar syrup to the colony. That has been found to be true because in a honey flow the disease to a large extent will disappear unless it has got a very strong hold. Sometimes it is recommended to leave a colony queenless for a short time. Perhaps that is not the very best way to handle the disease, because it appears that a colony that is queenless doesn't do its house cleaning quite as well as a colony that has a queen, and perhaps in making a colony it would be better, rather, to put a colony badly affected with European foul brood after the queen has been removed from the hive, in with a strong colony and let them handle the disease somewhat on the Alexander plan of uniting weak colonies. You want a large force of worker bees to clean out this disease.

Now, the scales of European foul brood are rubbery in texture, and usually it is not a difficult matter for the bees to clean them out. In that way they remove most of the germs in cleaning out scales.

It has been often discussed how European foul brood lives over during the winter. There is no brood reared during the winter. How does the germ exist? Nobody knows definitely, but a lot of practical beekeepers who have had experience with European foul brood think that towards fall the bees are not so careful with their house cleaning methods and there are particles of European foul brood scales left in

the cells, and honey put in with them. The disease germ will lie through in that condition until spring. Usually in the spring the third generation of young bees reared are affected with the disease. It makes its appearance with the second generation and gets worse till the beginning of the honey flow, and in many cases will clean out a colony of bees after it gets a strong hold in one year.

American foul brood. Its treatment is materially different in every way. If you are in an American foul brood locality, it pays to be on the outlook for the disease throughout the year, especially in the spring. In case of American foul brood you will practically find that the strongest colonies contract the disease first, whereas in European foul brood it is the weakest colonies that get it first. The reason why the strongest colonies of American infection get foul brood first is that they have a larger working force and have bees to do scouting work, and you are likely to find colonies infected by the disease before weaker colonies find them. In that way they have more bees to overpower the weak diseased bees in affected colonies and take the infectd honey to their own hive.

Since the bees are not to remove all the scale from American foul brood infected colonies, they are quite apt to store honey in cells containing these scales. That is especially true during the honey flow. When bees are gathering honey quite a lot of it, it is placed around in the brood chamber. That honey is likely to be placed in cells containing American foul brood. It is in fact difficult for the beekeeper to remove one of those scales without tearing out the cell walls. The bees move around in the hive. Most of the honey goes up in the super, in that way, after the honey has been placed in a cell containing scale, the spores of this American foul brood float out in the honey and when the honey is taken up to the super it is liable to reach any part of the colony; so that in treating for American foul brood it is important to melt up the super combs in addition to the brood combs.

I know some beekeepers who when they find a cell of foul brood in the colony cut out that cell. That is useless, because they are not removing the cause. Likewise it is just as foolish to try to use strong disinfectants such as beekeepers use in trying to eliminate American foul brood.

The only practical way to treat American foul brood is to treat it at the beginning of the main honey flow for several seasons. At the beginning of the main honey flow you have got your working force of bees, and if you are always on the lookout you will be treating before the disease has made very much progress in the hive, therefore the strong colony will not be affected to any material extent by the beginning of the main honey flow, and by treating them you are really making an artificial swarm, and the swarming from that colony will be a thing of the past for that year usually.

Another thing, at the beginning of the main honey flow, there will be a minimum amount of honey in the hive, so that you have less to destroy.

To make the treatment briefly, all you have to do is to set the diseased hive off its stand on one side, put a new hive on or an old hive that has been thoroughly cleaned out by scorching, by taking a blow torch and running the flame around inside the hive. It is always safe to use that, even if you are pretty certain there has never been any diseased bees in that hive body before. Place the clean, disinfected hive on the old stand. It should be fed up with full sheets of comb foundation. In front of the hive place one sheet of newspaper for the bees to light on when they are off the frame; on the other side you have an entire hive body, either one or two.

If you figure you would like to save the brood, and that is rather doubtful whether it pays to risk saving the brood after the bees have been shaken from the combs, it depends a little on the experience of the beekeeper. The beekeeper who has had considerable experience in handling bees and foul brood may find it advisable to save the brood. That is largely a matter of opinion. If you dont' save the brood, it is better to have an empty hive body for the brood and another empty hive body to put the empty combs and combs that contain honey, so that you do the sorting as you go along. This one empty hive body or two, as the case may be, should be stood on a cover, turned upside down so no bees can get in and out, and at the bottom or top you should have a cover. Go to the diseased colony and take out the comb and shake the bees off of the comb on to the paper in front of the hive.

At first it may be necessary to give a puff or two of smoke to get the bees headed for the hive. After they are started you don't have any further trouble. When you make this shake, if very much of the nectar drops out, it is better to discontinue shaking, and take a wisp of weeds—that is better than using a brush, because you brush the bees off the comb and let them drop on the paper. As soon as you have the bees off the comb, if it is a good comb of brood, it is put in one of these empty hive bodies and covered up. The brood is put in one of these hive bodies and the honey is put in the other. When you are through, pick up the paper and weeds and burn them up immediately. The combs containing the honey are then run into a bee-tight room or as near as possible to get. A bee-tight room is some room, and it is rather difficult to get them absolutely bee proof, for the bees will come in at the keyholes and even down the chimneys or through a knothole in the floor, or go through under the basement, and while it may be possible to get them, it is quite a hard matter. So that when these combs are in this bee house, there are one or two of these things done with them: either melt up in boiling water in a big vessel and boil for half an hour, closed, with a top over the vessel, because in boiling water it frequently happens that small particles will splash up on the sides of the vessel, and when those particles are up there they are out of the boiling temperature and the germs are extremely resistant and will not die unless they have been subjected to boiling temperature for at least thirty minutes, so that if you have a closed vessel the steam will do the scalding. If you feel it is not worth taking the trouble to give thies treatment, the best thing to do is dig a hole a foot or deeper and put a little straw in

this hole, pile your frames up in the hole, pour a little kerosene over them and set a match to them. As soon as the fire has burned out cover up the hole. The important feature in digging the hole is to prevent any honey running away, because you want to remember that honey will contain the spores of the disease.

To come back to the brood. You will have all this done in less time than it takes to talk about it. That brood, if you care to save it, can be placed on top of another colony that is slightly infected with American foul brood, placed above a queen excluder. In two weeks most of the brood will hatch. It is better not to leave it more than two weeks, because in many seasons you will be getting too close to the clover honey flow, and if there is no honey coming in, it is extremely dangerous to shake bees for American foul brood, so that in two weeks after that brood has been clear of this slightly diseased comb, you go to work and treat this colony as I have already described, and be very particular about cleaning up. See that no honey is dripping, have plenty of paper and burn up the paper as soon as the colony is treated.

Are there any questions, or perhaps some point that I don't make clear? Some people I believe shake under the tops of the frames and have an empty hive body to act as kind of a funnel. Personally I would like that because there is little danger of a little honey dropping off, on to the frames inside, and while that might not cause a disease to reappear, it means you are giving the bees a little more honey anyway, and that will increase the chances of them getting the disease. Of course, in treating a colony of bees it is necessary to smoke them, and they fill themselves with honey, and that honey is likely to be diseased.

It is always important to have nothing but full sheets of foundation in your hive, because if you have combs a lot of the honey bees take with them in the hive will be stored in the combs, whereas if you use nothing but foundation they will use the honey up in building wax, and it seems that honey gone through the process of manufacturing wax kills the germ. There is a modification, however. Sometimes it is recommended to use just one built comb in the center of the hive body. For the rest of the combs use foundation. That one comb is taken out in twenty-four hours. If you leave it in it is almost certain to have disease. Leave it in for twenty-four hours to catch any honey, that bees may have.

MR. KILDOW.—The newspaper in front bothers the bees coming in from the field, also if you shake down in front it confuses the bees and they are apt to fly to the next hive. A plan used in Illinois is to shake inside the hive on the old stand. If you shake and the honey jumps out, all right, but if the honey don't jump out, leave all the frames out. When you get them all shook, pull the board over and leave them two days, then raise this top board for three or four inches, giving it a slight jar. Lots of times by giving them foundation on the first shake, if the honey is coming in rapidly they are liable to store some diseased honey. So I quit that entirely and put them in the hive for a couple of days, without anything in there at all. Sometimes then if the flow is good they will make a lot of honey.

MR. ATKINSON.—Did you have any trouble in swarming out?

MR. KILDOW.—No.

MR. ATKINSON.—Quite frequently after the bees have gone in we put a queen excluder between the bottom board—

MR. BENNETT.—How do you get the bees in the hive?

ANSWER.—I shake them right off and the queen goes with them. Once in a while you will find they won't stay. If you will look around you will find the queen underneath the hive body somewhere, but it is important in fixing your hive to get a continuous runway. Sometimes you can do better, especially if you have got your hive raised up off of the ground, to have a board running from the ground to the entrance of the hive, then lay the paper on that, and you have got to get the queen in there, or they won't stay.

MR. BENNETT.—If you have the board do you use the paper?

ANSWER.—The board keeps the paper from sticking to it, and you can destroy your paper and use the board for the next one.

MR. KILDOW.—The shaking business is all done so quick that they haven't found out that they have lost the queen.

MR. BENNETT.—You talk about shaking your bees off. I have taken heavy combs out and broken the comb off with the bees.

THE SECRETARY.—Don't you have your combs wired?

THE PRESIDENT.—You shook too hard.

MR. COPPIN.—I have a lot of trouble with bees swarming if I shake them. The safest way is in the first place to catch the queen and they won't swarm. Place the cage and queen in the hive to begin with, then you know the bees will go in. There is one thing I don't quite understand. This gentleman stated you would find the disease in the spring of the year in the strong colonies first. On the other hand he said those strong colonies would go to the weak one, affected with disease, and carry the disease home.

MR. ATKINSON.—This is the point I meant to make: suppose you haven't any foul brood in your apiary. You have got a lot of strong colonies. Those strong colonies are likely to find the disease first in a neighbor's apiary and from colonies weakened down by the disease, therefore the strong colonies in your yard will get it first. Once they get it, they won't stay strong very long, and then strong colonies from other yards will come and rob those out. A colony of strong bees that gets American foul brood soon becomes weak.

MR. KILDOW.—I want to ask Mr. Coppin if he ever saw bees swarming out and the queen didn't go?

MR. COPPIN.—No.

MR. KILDOW.—Oh, I have. Colonies don't swarm out for me. I hear other folks say that to, "I wonder whether it is my bees, me, or what it is." I shake and the colonies stay there.

MR. COPPIN.—Do you catch the queen?

MR. KILDOW.—I do not touch the queen unless I want to kill her.

THE PRESIDENT.—We have thoroughly enjoyed this little talk by Tommy Atkins. I think this is the best talk we have had for many a day on foul brood, especially from a bacteriological standpoint.

MR. COPPIN.—After I cage the queen then I get rid of the bees out of the old hive into the new one. Let the queen stay in the cage awhile, then after they get thoroughly settled, I kill the old queen and give them a new one, and I would have a treatment that would answer whether it was European or American foul brood, either one.

THE PRESIDENT.—Anything else on this subject?

MR. TAYLOR.—In regard to American foul brood, I find they will swarm out even though you cage the queen.

MR. KILDOW.—I am pleased with this talk we have had. I agree with everything but the newspaper business.

MR. ATKINS.—The thing is to bear in mind the principle, and know that the disease is caused by a germ in that honey, and that the thing is to get rid of that honey the quickest and best way, and people will have different ways of doing that. There is no hard and fast rule. It is the same as you said about your inspection work in meeting a man.

MR. BISHOP.—The method we use in Champaign is the shaking method. We put in frames with starters and leave the bees on four or five days. We take those out, put in full sets of foundation, and burn up both sets of frame. I am glad though there is some other way besides that.

MR. KILDOW.—This is a matter I am interested in. That is the old method, brother, shaking them on starters, let them go three or four days, and shake them again. We have come to conclude, in the last three or four years, that that is hard treatment on bees, so we have quit that entirely. Some shake on full sheet and others shake as we do, on nothing for a couple of days, and then give them the full sheets. We found that plan, particularly the old plan, is practically done away with.

MR. BISHOP.—We have tried to shake on the full sheets of foundation and we have never gotten rid of the disease that way.

MR. KILDOW.—The safest plan is to shake in the empty hive.

THE PRESIDENT.—Mr. King, have you any questions?

MR. KING.—Not any.

THE SECRETARY.—I have one incorporated in a letter. A man wants to know about standardization of hives. We have a representative from the Lewis factory here, we would like to hear from him.

MR. ATKINS.—Very pleased to get that expression. We have heard a good deal about that lately. That matter has all been considered, I trust within a short time we may be able to make the change. I will certainly present that evidence, that is what I am here for, gentlemen. If there is anything that is not just right, I will be very pleased to make it right if I possibly can.

MR. COPPIN.—Is it necessary for Lewis to make a change or the Roots either?

THE PRESIDENT.—That is according to whether you want it bigger or smaller.

MR. COPPIN.—There is a difference of about one-fourth inch. It is a question which one ought to make the change.

MR. BENNETT.—I think all of us will agree somebody ought to make it.

Mr. Dadant.—The hive was put out with one-eighth division board on one side. The Lewis was put out without any division board, that was the difference originally in width.

The President.—I have three kinds of hives. I am not advertising anybody's wares. I find that the Lewis hive is made a little heavier and of a little clearer material, but I find it is one-fourth inch smaller than other hive. I would like to have the hive with one-quarter inch and space the outside frames so they are an equal distance from the two walls. But take it in hives I have today, one-fourth inch small on the outside, they are practically never drawn out. That is my objection to the lack of the quarter of an inch.

Mr. Kildow.—People you would think ought to have better brains than to use that division board as they do make it act as a division board and put it right in the middle of the hive. We find that bees use out to one side and starve to death, and there is plenty of honey on the other side. If it is used as a division board pure and simple, it is all right.

Mr. Coppin.—Is it necessary that beekeepers that know how to use it, should do without it? I use a division board but not in the center. I find I can take the division board out and it gives me room to move the first comb.

The President.—We are not saying that you should do away with all division boards, but I think the average man buying a hive is better off without it. A man who has the ability you have can use a division board.

Mr. Kildow.—I have been a division board man all my life but I am throwing them away now all the time.

The President.—I have a paper here by Professor Millen.

Successful Beekeeping.

(By F. Eric Millen, Professor of Apiculture, Ontario Agricultural College, Guelph, Ont.)

A prominent State Agricultural College has for its motto "Science with Practice." Successful beekeeping is exactly explained in those three words.

At first sight beekeeping appears to be one subject in which science is unnecessary. The beekeeper might ask the question regarding the value of science to one who is not engaged in teaching, experimntal or rsearch work, but who is engaged solely in caring for colonies, with honey production the sole aim. A brief analysis of the season's work in the apiary must convince every beekeeper that there are reasons for our manipulations and system of management, and that all successful manipulations are based on science. Show me the beekeeper who does not know the life history, habits and behaviour of the honey bee, to some degree at least, and you show me one who is not a successful beekeeper.

The more intimately acquainted we are with the life history and habits of the honey bee, the more successful can we plan our system of management throughout the entire year.

To show the necessity of "Science with Practice" in beekeeping, let us consider a few of the fundamentals of good beekeeping practices. Unless the beekeeper knows how bees winter, what they do and how they live, it is impossible to prepare the colony in such condition that they will not only survive the winter but emerge strong so that they are ready for the honey flow.

The winter of 1919-1920 proved disastrous to many apiarists all over North America. Why? Not alone because the winter was severe, but in most cases because the beekeepers either did not know the requirements of the bees or they did not practice what they knew. On the other hand those bee men who combined these two fundamentals "Science with Practice" wintered their bees with little loss.

Queen bumble bees winter over in a state of hibernation, queen wasps also hibernate during the winter, so that in these two cases the question of food and the question of heat and protection are eliminated. We know that honey bees do not hibernate and that to survive the winter they must have food and there must be a sufficient number of bees in the colony so that they can maintain a temperature high enough to enable them to live. The beekeeper who mixes "Science with Practice" knows these facts and prepares the colonies accordingly, with little winter loss.

One might question the value of science when swarming is concerned. Unless the beekeeper is familiar with the life history of the honey bee, their habits and behaviour, the swarming season becomes a nightmare and the beekeeper is helpless. If there are many colonies in the apiary, this season of the year means very hard work and poor returns to those apiarists who do not mix "Science with Practice." On the other hand the successful beekeeper knows that before a colony prepares to swarm they build Queen cells and that in normal cases the colonies will not swarm until the queen-cells are capped or ready to cap. An examination of the brood-chamber enables the ower to tell approximately when the colony will swarm. This man also knows that the removal of the queen, or the brood or separation of these, together with good managament, controls swarming. In fact the successful beekeeper knowing that colonies will swarm in normal seasons at the beginning of the honey flow, or shortly after the main flow has commenced, takes steps a month or more before this time to make conditions in the colony such that the bees do not think of swarming.

It is hard to estimate the annual loss in honey to the beekeeper, where the colonies are allowed to swarm at will, when they will and where they will. Second swarms are even less desirable and yet many occur, simply bcause the beekeeper does not know how long it takes a queen bee to develop after the egg is laid or that by removing all queen cells but one, after the prime swarm has emerged second swarms are eliminated. Many beekeepers find swarm control a serious problem. It must remain so until they mix "Science with Practice".

What would have become of beekeeping if we had not scientists working on the diseases of bees? It is certain that commercial beekeeping would have been an impossibility in many sections of the country. But here again we find that science alone is of little value unless combined with practice. To the successful beekeeper both American and European foul brood have lost their menace, not because they have ceased to destroy colonies, but because they know how to diagnose these diseases and give the treatment necessary. Today it is impossible to become and remain a successful beekeeper unless the disease of bees are known, recognized and treated.

Beekeeping has passed the experimental stage and is now recognized everywhere as an industry of proved value.

Beekeeping differs radically from most other branches of agriculture. In all other live stock farming there is a daily attention necessary to keep the stock in condition so that it may be profitable. In beekeeping there is a long season of apparent inaction, with a very short season when the profit of the year must be obtained. So many beekeepers fail to connect the inactive season with the active, that failure results.

The successful beekeeper has come to realize that beekeeping is a business like all other industries.

It is true we cannot alter nature, but so many of us blame nature for a poor crop when the blame should be placed on our own shoulders. Many of us no doubt know of beekeepers, successful beekeepers, who year after year secure a profitable crop of honey while many of their neighbor beekeepers secure little or none. On striking example was the late Dr. C. C. Miller, with a location which did not grade the best, this great beekeeper secured crops of honey which should put many of us to shame. Dr. Miller believed strongly in "Science with Practice".

Until beekeepers generally realize that to be successful, they must not only have the knowledge, but actually put this knowledge into practice, they cannot succeed as they should.

Today the successful commercial beekeepers must know much more than the life history, habits and behaviour of honey bees. He must know something about the weather conditions and a great deal about nectar producing flora in his location. Many beekeepers have been able to secure a profitable crop of honey by watching the flora and when conditions appeared that a crop would not materialize, have moved the bees to a location a few miles distant and succeeded in securing a profitable crop.

Bookkeeping and salesmanship do not appear to be very closely allied to beekeeping. A closer investigation shows us, however, that we must know what our crop costs us to produce, otherwise how can we tell whether we are securing a profit or loss when the crop is sold. During the past two or three years honey has sold of its own accord largely because of abnormal conditions. From all appearances we are again approaching normal conditions and those beekeepers who do not pay some attention to salesmanship may find that they can produce a crop of honey but cannot sell at a remunerative figure.

Many other points might be included which are necessary to make a successful beekeeper, some of these we can summarize as follows:

(1) Successful beekeeping requires some years of apprenticeship, (2) Successful beekeeping requires confidence and a realization of the possibilities of the business, (3) Successful beekeeping requires judgment, a knowledge of conditions and ability to take advantage of opportunities.

In conclusion the successful beekeeper is the one who has the knowledge and puts the knowledge into practice, or as stated before one who combines "Science with Practice." It is not necessarily the number of colonies which denote the honey crop, but the number of bees in the colony at the right time and managed in the right way.

MR. STEWART.—Have professional men ever been any benefit to the honey producer?

MR. DADANT.—I imagine he has.

THE PRESIDENT.—You mean the scientist?

MR. STEWART.—Professional men, lawyers, doctors, people like that.

MR. COPPIN.—Isn't that where we have got most of our knowledge from, what we know now? I judge it is. We get it from what we have read and practiced ourselves.

THE PRESIDENT.—I think one trouble with a few men is they are a good deal like our friend Stewart. When they read something and it apparently comes from a man that is a scientist or a college-bred man or a man that has come into things deeper than they have themselves, they say it is all bosh and pass it up. That has been one trouble with some of our inspecting systems, it has been the trouble with our educational system; some men are very critical of all the scientists, the thing was so far beyond them that they didn't grasp it, and if their understanding was defective in the matter, therefore it was all wrong.

MR. STEWART.—Everything done in beekeeping has been done by the common herd.

THE PRESIDENT.—I can't agree with you. You mean the uneducated man?

MR. STEWART.—The common run of beekeepers.

THE PRESIDENT.—I think the man who established the cause of all infectious diseases among men was a scientist. The man who discovered the life history of the honey bee and gave it to the public was a scientist.

MR. COPPIN.—I believe Langstrath was a preacher.

MR. STEWART.—Men fifty years ago knew all about handling bees just as they do today.

THE PRESIDENT.—Doolittle was an authority on queen-raising. I am for the scientist, the man that knows. I think the majority will agree with me in that.

At this time a recess was taken.

THE PRESIDENT.—If there are no objections we will proceed with the election this afternoon. Nominations for president are now in order.

Dr. Baxter was nominated and the nomination seconded.

MR. TYLER.—I move the secretary cast the ballot for president.

Seconded by Mr. Stone.

THE PRESIDENT.—Mr. Stone, you are the vice president, you will have to act as chairman.

MR. STONE.—The motion is that the secretary cast the ballot for Dr. Baxter as president. All in favor signify it by saying aye, contrary, no.

The motion was unanimously carried.

THE SECRETARY.—I hereby cast the ballot of this meeting for Dr. A. C. Baxter for president for the ensuing year.

THE PRESIDENT.—The next office is the office of secretary. Nominations for the secretary are now in order.

MR. COPPIN.—I nominate Mr. Withrow.

The nomination was seconded.

MR. STEWART.—I move the nominations be closed.

Which motion was unanimously carried.

MR. DADANT.—I move the president cast the vote of the convention for Mr. Withrow as secretary.

THE PRESIDENT.—I will take that as the concensus of the meeting. On behalf of the society, I cast the vote of the society for Mr. Withrow as secretary for the ensuing year. Nominations are now in order for the office of treasurer.

MR. STONE.—I nominate Mr. George Seastream of Pawnee.

THE SECRETARY.—I move the nominations be closed.

(Both motions were seconded and unanimously carried.)

THE SECRETARY.—I hereby cast the unanimous ballot of this meeting for George C. Seastream as treasurer for the ensuing year.

THE PRESIDENT.—Now there is to be elected five vice presidents, and while nominations might be in order, I think it would be best for us to have each one to write five names upon a slip of paper, and the five receiving the majority of votes declared to be vice president. I am going to ask Mr. Kildow and Mr. Dadant to act as recording tellers, and Mr. King to collect the ballots. The vice presidents at present are, in the order named, first James A. Stone, second Aaron Coppin, third W. H. Williams, fourth C. L. Bender and fifth Harry L. King. Mr. King will collect the ballots.

Ballots were prepared and the votes counted by the tellers.

THE PRESIDENT.—Mr. Stone has been elected first vice president, Mr. King second, Mr. Coppin third, and Mr. Williams fourth vice president, and Mr. Tyler and Mr. Bender have tied for the fifth place. Of course it is impossible for them to draw on this, as Mr. Bender is not present, so I will ask you to vote again on the fifth vice president.

MR. STEWART.—Can we vote by acclamation?

THE PRESIDENT.—Yes, there is nothing against that.

You can have a standing vote on it.

MR. STEWART.—I move Mr. Tyler be nominated as fifth vice- president.

Seconded by Mr. Dadant.

MR. DADANT.—I move the nominations be closed.

Seconded, and unanimously carried.

MR. DADANT.—I move the secretary be instructed to cast the vote of the convention for Mr. Tyler.

The motion was seconded, unanimously carried, and so ordered.

THE SECRETARY.—I hereby cast the unanimous ballot of this convention for S. A. Tyler for fifth vice president.

THE PRESIDENT.—It seems we have hurried this election along. Mr. Paddock is here. I know he is very anxious to talk to us this afternoon, so I thought it would be just as well to have Professor Paddock's paper this afternoon. Professor Paddock. (Applause.)

PROFESSOR F. B. PADDOCK.—Mr. President and beekeepers: I didn't expect to come on the program until tomorrow morning, but I might as well get it out of my system and relieve both you and myself. We will just have to call this a talk. It may be something like the situation in our own state last year, when I asked our good friend Dr. Bonney what he was going to talk on. He said, "Oh, I don't know—something or other." And as time went on and he didn't deliver his subject, I put it on the program "Something," and he talked on "Something." Perhaps that is what this is going to be, but in the absence of anything better I will call it, "Beekeeping of Tomorrow." We are all interested in tomorrow. Mexicans are not the only ones that have "manana" for their motto. We can look forward to tomorrow with a great deal of expectancy, because tomorrow holds much for the beekeepers. But the beekeeping of tomorrow will be built upon certain things that we are not giving due consideration to now.

The last figures for our State gave an annual production per colony of 38 pounds. We like to tell big stories of honey production in Iowa, and they do not call it beekeeping in one section unless they make two hundred pounds per colony. One man has a record of fifteen years in which he has produced one hundred and sixty-five pounds per colony, so there must be some very poor people in the state to run the figure down to thirty-eight pounds.

We have no figures to show that the production is increasing as it should. I have no doubt when we do get the figures they will indicate a slight increase, otherwise we will not be able to show results of our extension work, which has been very excellent. Just how much that increase in production is we cannot say at this time, in my opinion it is not what it should be.

The lack of increasing our production is reflected in another way. In 1914 the American public was consuming honey at the rate of two pounds for every man, woman and child. In 1920 we are consuming the same amount of honey. If there has been an increase in production in this United States, where has it gone, and if there has been an increase, why haven't we been getting it? If there has been a slight increase, what is responsible for it?

I believe we trust entirely too much today to the good Lord. We put a great burden on His shoulders. What are we doing, ourselves, to increase honey production in the United States? I know there are some of you here, who will contend we are producing all the honey we can consume. Your argument for that is the fact that honey prices have recently dropped, there is little market for honey at the present time, except locally. Those conditions were brought about by abnormal world conditions. Foreign exchange is reported to be responsible in a very

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PROF. F. B. PADDOCK.

large measure for the money market. Normally the United States is an exporting country, but with exchange as it is today, we are an importing country.

I heard some interesting things at the Chicago meeting. The honey from Chile, Central America, the West Indies, Mexico and Porto Rico is being sent to this country in large quantities. Why is that condition different from what it used to be? We were told a few years ago that eighty-five or ninety per cent of the honey from those countries was shipped to New York harbor, in bond, to be sent to Hamburg, Germany. That honey cannot go there today, because of exchange, cargo space, etc.

Another interesting thing was brought out at Chicago. The beeswax market was down, and it was interesting to me to learn why it is so seriously affected today. The beeswax has been sent to this country from Africa. We didn't appreciate the importance of beeswax production there, and why? The normal market for African beeswax has been Russia, where it was made into candles for church services. It never came to our attention, for it has been said that the bolsheviks haven't had time to burn candles, so that beeswax is dumped on our market.

We have got to do something to increase our production and consumption at home. We are consuming two pounds per head. It was interesting to me to learn that the consumption of honey in European countries was pound for pound of sugar. Our consumption was two pounds in 1914, at which time we were consuming about seventy pounds of sugar. The two pounds of honey consumed remains the same, and the consumption of sugar is going up so fast we can't get figures on it. The last I heard was ninety-eight pounds.

Among the things we ought to do I would include bookkeeping for beekeepers. Mr. Ranchfuss at Council Bluffs last month gave us some interesting figures, almost amazing. His figures showed that a man must produce sixty pounds of extracted honey to break even. I admit there are few beekeepers who are in a position to say what their beekeeping is costing them. Why shouldn't we do it in beekeeping the same as we are doing it in other lines of business? We have got to get at this cost business before we can legitimately ask for a definite price on the market. Before we can defend any price on the market we have got to know the cost of production. I am glad to say a great many beekeepers are becoming interested in this matter and are taking it up in one way or the other. We did a little work on this at Ames last year, and we found that for the modified Dadant Hive it was costing us three dollars and fifty-five cents, that is to assemble a story and a half. That is a larger item than I had figured it should be. You buy your bees at seven dollars and a half, you buy a hive at eight dollars, as hives are selling, and you figure that your investment is fifteen dollars. We are too apt to consider only the capital investment and we fail to appreciate the labor investment.

The third point to consider in the matter of increased production is good queens. In our state the extension work has resulted in a good many beekeepers buying their first Italian queens. Beekeeping has been conducted unsystematically for a long time and beekeepers have been content with wild bees. For the first time they have enjoyed the benefits of the Italian bees, and so many of those beekeepers are so enthused that they are going to treble their orders for queens next spring.

But the question comes to me, are we getting out of our queens all that we should? I want to give you a review of a yard that has been under my observation this year. This yard was made up of sixty colonies originally. Those sixty colonies were made from forty-frame nuclei and twenty-pound packages. All the bees were received approximately April twenty-seventh. The queens were supposedly raised at approximatly the same time, and the bees came from the same yard. The queens of course came from two different sources and their history is followed out in two different tables.

After the time they were received, on April twenty-seventh, there was some loss, due to the queens disapparing for one reason or another. Those nuclio having lost their queens were distributed among the others in the yard here and there, wherever they were supposed to be needed.

In summing up conditions between April twenty-seventh and June fifth we can only say that so far as it is possible for us to figure, the condition of those colonies and the care received was equal. In other words they were received at approximately the same time, all were treated the same in that they were put on foundation, all were fed apparently equal, all were given help whenever needed, so that when you put them all in a sack you have got to say, so far as the beekeeper is concerned, those colonies all received the same attention. If we go to diagnosing any differences, it is very technical and will get us in deep water, so I think we can say we started on an equal basis.

Of the twenty colonies originating as packages on April twenty-seventh, only fourteen were colonies on June fifth. The others were lost from one cause or another.

An arbitrary standard of rating was given to those colonies. Those having brood in six-frame modified Dadant hives were considered as excellent, five-frames as good, four frames medium, and below four frames poor. That is arbitrary, but since all colonies were rated at the same time, we can accept that as well as any other rating. On June fifth, previous to the main honey flow in our section, we found two were rated as medium and twelve were rated as excellent of the fourteen existing colonies. From April twenty-seventh to June fifth, a period of about five or six weeks, those colonies had been given the same attention, and yet at that time there was a difference in those colonies, a visible difference. In those two colonies we had only four-frames of brood, whereas in the other colonies we had six frames of brood. The reason for that was not apparent at that time and will not be apparent, but it is the same reason as shows up in the season in the harvest. Of these forty three-frame colonies nine had been lost, giving thirty-one colonies, and those thirty-one colonies were also rated on June fifth, and we found thirteen good and seventeen of them excellent, and one poor.

The question arises, why should we find that difference in rating over a period of six weeks? In my opinion the question can be just as easily answered at that time and as easily remedied as it can later, but in going through this last season's work the cause of this did not become apparent until after the season. Why should one colony, when the queen came at the same time, raised in the same yard, have only three frames of brood and this one have six frames of brood?

You can give all the excuses you want. I was saying, "perhaps tomorrow some unforseen something will happen which will cause that queen to do better, that will cause the colony to pick up and be in the condition of the other colonies." I found after the season was over there were a great many other beekeepers in the same situation. Go to any yard and you will find some with one super and some with five supers of honey. If you ask the beekeeper why, he will give you excuses, but I want to tell you this is not an age of excuses, it is an age of results.

After the honey flow was over and the honey was gathered on August 1st, approximately sixty days—our sweet clover crop was of that duration—these two medium colonies had a total of one-half super to show for their season's work. These are modified Dadant supers with an estimated forty pounds net of extracted honey. One of those mediums did not produce a single pound of surplus honey all season. The other produced half a super or twenty pounds. We didn't expect anything more of those, because they were only mediocre colonies. Take these twelve excellent colonies on June fifth, which look to be all the same, but what did August fifth show? August fifth showed that two of those twelve colonies produced one-half super of surplus honey. Going down the chart, it will be seen that two produced one and a half supers, and one produced two and a half. I have a dividing line showing that five of the twelve colonies produced less than the average produced for the yard, and five, the biggest single unit, produced three supers or one hundred and twenty pounds and two of those colonies produced four supers or one hundred and sixty pounds.

What is the trouble? Something is wrong when there is variation during the honey flow. When it comes to dollars and cents there is something wrong, because one colony gave the owner one hundred and sixty pounds of honey, which is selling at thirty cents a pound. Everything was equal as far as we can make it. Another colony made twenty pounds which could also be sold for thirty cents. Take the same thing in the other table. We didn't expect much of those good colonies, and we were not disappointed. Seven colonies only produced one-half super each, twenty pounds of honey, and yet these were started out in the same way of April twenty-seventh as the others.

We find in table two that there are thirteen colonies which produced only thirteen and one-half supers of honey. Getting into the class which is rated as excellent again, the colonies were just as good, that is excellent, in that they all had six frames of brood at the beginning of the honey flow. What happened to part of the colonies? They produced one-fourth super or ten pounds of surplus honey for the season. Two more produced twenty pounds of honey, four of them pro-

duced only one and one-half supers apiece, two produced two each. Ten colonies were rated as excellent on June fifth, which is as good as the other seven. Ten colonies out of the seventeen only produced a total of eleven and one-half supers of honey. Something wrong. Of the remaining seven colonies in the excellent class, five colonies produced three supers each. You will see the coincidence in tables one and two, five colonies in each set produced three supers of honey each. One colony produced four supers and one colony produced five supers. This last colony on June tenth did not look any better than the one that produced one-fourth super. Something is wrong.

In my opinion, the mainspring of the colony is the queen. I don't know what Jay Smith will say tomorrow morning, but let us go further with these figures. If all of these fourteen colonies had produced what is taken as the average or what most good colonies would produce, if all those fourteen colonies had produced three supers each, we would have had forty-two supers produced in the package colonies instead of having twenty-nine and one-half. If we would put that in pounds of honey at thirty cents a pound, the owner of those colonies of bees has lost one hundred and twenty dollars cash, as a result of the queens laying down on him. That is the only way I can put it, or as the little boy said when his grandfather got up with rheumatism, he said, "Granddaddy hasn't got a good get-away." That is what happened with these queens, they didn't have a good get-away. They laid down.

In table two, if all the colonies had produced what was evidently the average, three supers, we would have had in that yard an increase of seventeen hundred and sixty pounds of honey. If every colony had produced three supers, and it looks reasonable to expect that three is a logical number in that the biggest single item is three supers and the biggest single item in this set is three supers, we should rightfully expect the colonies in that yard to do what the average colonies did do. What do we lose? We lost four hundred and forty dollars in these colonies this season, in my opinion, due to poor queens. In my opinion those queens were all excellent on June fifth, but a portion of them flattened out, did not deliver the goods.

What was the beekeeper doing all this time? Hoping and trusting that conditions would change, but hope can't do everything. Four hundred and forty dollars for the number of queens that went bad, or eighteen dollars a queen. Every poor queen in that yard cost the beekeeper eighteen dollare in cold cash just that one season. Does it look reasonable to you? Are you convinced from figures I have shown you, that that is the case? Am I expecting too much of those queens? If I am, I want you to bring that out in the discussion. What are we going to do to remedy that condition? The real remedy is a long hard row. The real remedy consists in breeding queens from a production standpoint. I know you will say mating can not be controlled, and I am not going to argue that point with you, but I want you to bear in mind that the egg production in this country has been increased. I read the other day about a three-hundred egg hen. How do they do it? Most of that work was done at the Maine Experiment Station, where

each individual had a record, and the progeny kept was based upon a record of production. If any of you are buying hogs or cows, don't you look at the production, look at the history back of it? Experiments at the Ames Experiment Station with dairy cattle show that in one generation they could take a scrub cow with a pure bred sire and practically double the milk production. That in my opinion is reasonable evidence that although you can only control one side of your mating, you can successfully improve your production.

I believe the time is going to come when beekeepers are going to demand not a queen, but a queen who has a history back of her. When I had Rhode Island Reds I bought them from stock that had a history. So in my opinion, the time is going to come when we are going to buy our queens from Smith, Davis, or any other queen breeder, when we know those queens came from colonies that will produce a reasonably good surplus of honey. In the meantime it is going to be perhaps ten or fifteen years before we can get it on a working basis. In the meantime I think it is reasonable to assume that no beekeeper would want to keep the poor queens.

We are going to go further on that. We are going to get back into this period of time, we are going to get into the period between April twenty-seventh and June fifth. How much patience should we give a queen? In my opinion we should not give a queen very much leeway, because although we like the queen for color and gentleness, nevertheless it is pounds of honey that is going to count. Therefore I believe we should watch our colonies carefully in this period and previous to the rating, which at this time was given on June fifth. If we find the poor queens previous to the honey flow, I believe there is a time in the building up period when we can introduce a queen in the hope that that queen will act as a relief pitcher. Buying queens as we do, we have no assurance that the queen we put in will do any better than the one we took out, but I am satisfied that the problem is worth trying.

Improvement can be made, and selection should be given by the beekeeper. I am satisfied that although all the poor queens have been replaced this fall, they will not come up to the standard next year. No doubt we can find some of them that will show a better rating in the spring, and we can gradually increase our yard against the handicap of having to get queens of unknown history. I thank you. (Applause.)

MR. KILDOW.—How could you have told anything about your queens for that period, from April twenty-seventh to June fifth?

PROFESSOR PADDOCK.—In going through your yard you see some colonies have three or four or five frames of brood. My proposition is not to ask all of them to have five frames, but those which are laggins, to replace these queens. If you are watching your colonies carefully, you will know when they are not checking up like the average. We knew it, and yet we were trusting something would intervent, we didn't know what it was to give them a shove, to put them up with the average, but the time never came. I found others in the same vicinity doing the same thing. They knew those colonies were not doing what they should do. A man would say, "I know this colony is wrong."

MR. KILDOW.—We don't know.

PROFESSOR PADDOCK.—We put in too much time in hesitation. He who hesitates is lost. I hesitate to hesitate more.

MR. KILDOW.—The thing to do is to be more careful about selecting better queens for breeding.

PROFESSOR PADDOCK.—You know it is the history in other lines.

MR. TYLER.—Wouldn't it be policy to raise your queens from those five that produced the most?

PROFESSOR PADDOCK.—That question has been put to me several times, raising your queens from one colony and mixing your drones from one of these. We cannot control mating, but we could predominate drones by putting drone foundations in there and getting a lot of them. Dr. Phillips says we do ot know the inheritance drone.

QUESTION.—In increasing your output, which side will you increase it from, your drones or queen?

PROFESSOR PADDOCK.—Not enough breeding work with these has been done to show, but it is a logical conclusion and has been confirmed by the general history of breeding that we can improve on either side. With the bees we can control the maternal side and we cannot control the paternal side.

QUESTION.—Don't you think if you get your drones from a colony of high production and cross them with a virgin queen from a colony of high production, that you would increase your production?

ANSWER.—Personally I do. The drone is an unfertile egg and of the same constitution as the queen.

MR. STONE.—You assume that those supers average forty pounds of honey?

PROFESSOR PADDOCK.—They averaged thirty-eight pounds, I suppose.

MR. STONE.—How many frames were in them?

PROFESSOR PADDOCK.—Eleven frame supers, modified Dadant supers.

MR. DADANT.—I would guess above forty.

PROFESSOR PADDOCK.—We figured it wouldn't run far from forty pounds.

MR. STONE.—In a nine and ten-frame super they will run around fifty pounds.

PROFESSOR PADDOCK.—The principle is the same.

MR. STEWART.—You get those packages from the south?

PROFESSOR PADDOCK.—Yes.

MR. STEWART.—Were those bees in all those packages the same age?

PROFESSOR PADDOCK.—We don't know, but the bees entered here were raised in the north, anyway.

MR. STEWART.—The old bees dropped out and you didn't have enough honey.

PROFESSOR PADDOCK.—If you go to diagnosing those things you are going to get into deep water.

MR. STEWART.—The age of bees has a great deal to do with their work.

PROFESSOR PADDOCK.—You can pick out peculiarities with any one of those colonies, but rather than go into details it seems to me better to strike an average all the way through.

THE PRESIDENT.—Anyone else anything to ask the professor?

MR. COPPIN.—There might easily be such a thing that the fault was really not in some of those low-grade queens, it might be that he would be short of bees to raise the amount of bees that you had. You can't tell anything about that.

MR. BISHOP.—I would like to ask if you have had a queen poor for a little over half the season, and then came up and made the average, if she was a good queen.

THE PRESIDENT.—That is a very good question. Have any of you ever had a poor queen that became good, that was not up to the average, and afterward came up to the average? Personally I never have.

MR. COPPIN.—If we didn't watch it thoroughly, there is such a thing as the queen being superceded, and the young queen taking the old queen's place, the beekeeper not knowing it without having the queen's wings clipped.

THE PRESIDENT.—Any other questions on this subject? If not, have you any questions upon any bee subject?

MR. KING.—Here is one. What would you consider the best way to increase where you have plenty of drawn combs?

THE SECRETARY.—Buy about a two-pound package of bees and turn the bees loose on them.

MR. COPPIN.—I consider we always have plenty of drawn comb.

MR. STONE.—I would say, stimulate your bees, and when they get strong enough, divide them the way Werner did.

MR. KILDOW.—A very good plan would be to build them up about the starting of the honey flow. Take the old queen and a couple of frames of brood, and put them in the hive, and build it up. Then give the old colony, if you have them, a young queen.

MR. BISHOP.—A year ago last spring I lost the bees I had from an attempt to ship them, and last spring I had a time getting started again. I got Root queens and made divisions. I got Dadant queens and made a further division, and I sent down to Davis and got another queen and divided a ten-frame hive. Part of the time I used drawn comb and run out of that, so I commenced with foundation. This winter I have read everything on increase I can get hold of, and I am going to try next year and see if I can't produce sixty colonies of bees and a little honey.

MR. STEWART.—At what time in the summer would you make your increase?

MR. KILDOW.—I would suggest before the honey flow.

MR. STONE.—Mr. President, I want to repeat what Mr. Louis Werner said, when he told how he increased bees. The floods drowned everything but four colonies, and he bought four more and by fall he had sixty-four. He would stimulate his bees, and every once in awhile he told about having a neighbor that had bees, and he tried to increase his, and he said, "I have my bees educated; they swarm just whenever

I tell them." He said, "They are going to swarm next Tuesday, and when they swarmed he would double his colonies by dividing every colony. He had first eight, then sixteen, thirty-two, sixty-four colonies in the same year from those eight. It was a pleasant job, and easy to do.

THE CHAIRMAN.—I think it would be well for us to adjourn until tomorrow, as we have Jay Smith's paper in the morning, and I understand Mrs. Kildow has a paper. We will also have the report of the auditing committee in the morning, and the committee on education.

Whereupon adjournment was taken till 9:00 a. m. the following day.

WEDNESDAY MORNING SESSION.

The meeting was called to order by Dr. Baxter.

THE PRESIDENT.—The first thing this morning is the report of the auditing committee.

MR. DADANT.—"We, the undersigned, have audited the report of the secretary and treasurer and find the same correct.

"Signed, M. G. DADANT,
A. L. KILDOW,
Committee."

THE PRESIDENT.—You have heard the report of the committee. What shall be done with it?

MR. TYLER.—I move it be accepted.

MR. KILDOW.—Second the motion.

(The motion was carried.)

THE PRESIDENT.—The report of the educational committee is next in order.

MR. DADANT.—The committee drew up two different papers, one to cover the inspection and the other the educational work. I will read the educational first:

WHEREAS, The need for a thorough course of education in beekeeping has become a desirable and urgent need to the better development of the honey resources of the State of Illinois, and

WHEREAS, The beekeepers of the State of Illinois are confronted with many problems such as wintering, diseases of bees, honey flow and nectar secretion, hive sizes, races of bees, queen rearing, etc., and

WHEREAS, Illinois, ranking as one of the foremost states in value of beekeeping interests, yet being outranked by a great many in instruction and research in beekeeping; be it

Resolved, That the Illinois State Beekeepers' Association request, recommend and urge the establishment of a thorough department in beekeeping at the University of Illinois, such department to include a full four-year course in instruction, a division for research on beekeeping subjects, and proper educational extension work throughout the State; be it further

Resolved, That a copy of this resolution be sent to the proper authorities at the UNIVERSITY OF ILLINOIS to bring this matter most forcibly to their attention.

MR. DADANT.—I move the adoption of this resolution.

MR. STEWART.—Second the motion.

(The motion was carried.)

MR. DADANT.—The other resolution is as follows:

We herewith ask and urge an appropriation for bee inspection, which will compare favorably with our sister states of Iowa, Minnesota, Indiana, Wisconsin and Michigan.

We further recommend and request that the law governing the state bee inspectors' per diem salary be changed.

MR. DADANT.—I move the adoption of this report also.

MR. KILDOW.—Second the motion.

(The motion was carried.)

MR. KILDOW.—I was at a conference of inspectors of several states, in Chicago, last week. New York is getting ten thousand dollars and they are going to ask fifteen at this session. Michigan is getting ten thousand and is going to ask for fourteen. Minnesota has three thousand and will ask four thousand. Wisconsin has five thousand and they are going to ask for ten thousand. Montana is getting a law through this winter, asking for three thousand. In Mississippi a law is being enacted this winter, asking for ten thousand dollars, Florida is getting ten thousand, Texas sixteen thousand five hundred, Illinois is getting two thousand a year. Kentucky gets seventy-five hundred for inspection. We are getting two thousand a year. Of course we can't complain a great deal because that is all we are asking for, but we ought to ask for a little more. I would like to know how much we ought to have. I have put in my plea to vote for an appropriation, but whether I have got enough I don't know, I have asked for an increase to three thousand. Whether I have enough or not, I do not know.

THE PRESIDENT.—I don't believe you have.

MR. KILDOW.—We won't get more than we ask for, that is certain.

THE PRESIDENT.—I think it is wise, when you ask, to ask for plenty. They may cut it down.

MR. KILDOW.—I would like to say while I am at it, in attending this conference of inspectors I find that our law and our system is as good as any that is proposed, and I believe we can get what money we need. Wisconsin has a system which they like, and yet they do not exactly like it. It is a system of a clean up area, but they take a small area of the state and work that all together. The rest of the state is howling to beat the band at them. Of course they have reason to howl, because they are probably rotting with disease and the other parts of the state are getting help. It will take the inspectors several years to get across the state, two or three years to clean up a certain area and feel they have got it clean. By that time part of the rest of the state is pretty bad off. One of the inspectors says they are howling, and I do not blame them either, and I would like to have it so at this date we could get money enough so we could pay several competent inspectors enough so that they can take a certain area and work that thoroughly, and yet have the work scattered all over the state, so that when a call comes in we could attend to it. I believe in that way we could get along very well. As fast as we would clean up one area we would go to another, and in that way we would finally get the state under control. I have in mind asking for money enough to get competent men. With the money we have under present circumstances we can't get enough good men.

THE PRESIDENT.—Has anyone any questions this morning that they have handed in to Mr. King?

MR. KING.—I have one; what is the increase of value of a super of drawn combs over one of foundation, ten-frame shallow super?

MR. PADDOCK.—What is the value of comb over foundation in supers? If you will refer to Bulletin 158 you will find this very thing

answered. The experiment consists of five colonies given drawn combs and five colonies given foundation. Those five colonies were as nearly equal as it was humanly possibly to make them. The five colonies supplied with foundation throughout the season made an average of ninety pounds of honey, the five colonies supplied with combs throughout the season made an average production of two hundred and ten pounds.

THE PRESIDENT.—Has anyone anything else?

MR. KILDOW.—Drawn comb is worth something.

THE PRESIDENT.—Certainly. We will now have the paper by Mrs. Kildow.

MRS. KILDOW.—Mr. President, gentlemen: Theory and practice as applied to beekeeping. From what I have seen and questions I have heard, I decide that some beekeepers, especially the beginners, think there are principles and rules that will apply to every apiary. True there are, but their application is made under different conditions and the principles must be tempered to these conditions.

Any beekeeper without theory and knowledge of his work will find obstacles that have been overcome by his predecessors, and it is their theory combined with their experience that will help the beginner, if he only takes time to investigate conditions under which these will apply.

Mr. Aikin once said, "Remember an apiary won't always be 'just so'." Where is the apiarist, though he be old in the business, that has had all the conditions and management just the same for two seasons? Each season requires a management peculiar to itself; and for this reason no matter how sound may be the principles set forth, these principles must be applied according to the peculiar needs of the location, and the object in view. If you are working for comb honey, the principles laid down by a beekeeper producing extracted honey will not apply to you.

The apiary that has been properly cared for in the fall will not need the same attention in the spring, as one that has gone into winter in poor shape. What we do from fall to spring has much to do with how we do from spring to fall.

Yet we must not be discouraged because all theory is not applicable to our conditions, but as Mr. Doolittle said, "Do a little thinking on our own hook."

You undoubtedly have heard of the beginner, who having bought a colony of bees, was asked to read the bee journal. He remarked that his bees would not go according to books. Other beekeepers have noticed that at times their bees were obstinate and trespassed all bounds and utterly refused to be guided by books.

But the books and periodicals are good and indispensable to success, and they should be read and given deep study, while it requires practice, thought, observation and adaptability to make beekeeping successful.

Back to our statement, what we do from fall to spring.

Suppose our object is comb honey, then we should get our supplies and have all sections ready before the spring work begins. But the question that is perplexing us is how many sections we shall need. It

is best to have a good supply, as they will keep, and in case of a rush we may lose considerable honey, if short on supplies. This work should all be done during the winter months.

Another topic that claims attention between fall and spring is winter protection, and if the bees are wintered out doors, they certainly need protection, as it gives a more even temperature to the bees, and is again in brood-rearing during the spring.

After this is done the beekeeper must still be watchful and occasionally go through the apiary to see that all is right, and that there is no robbing on the bright sunny days. Now we are drawing close to spring and as the warm days come, it is best to get busy and examine each colony that we may know the exact condition, and be able to determine what to do. For should any colony be getting destitute of stores, attention is required at once. Or some colonies may be queenless and they will need attention, or possibly it may be wise to unite these colonies. Then special care should be given that each colony is snugged up to protect it.

The spring has passed and the beekeeper's work begins in earnest. The bees should again be examined and now *practice* is your part, for it is only by steady work and vigilance that you will keep in touch with the condition of your bees, and know just when to put on the supers, and when to do the many things that fall to the lot of the good beekeeper.

Should you find disease in your apiary, you will find that you require both theory and practice. For these must go hand in hand to intelligently treat foul brood.

From questions that frequently come to the office of the Inspector, we find that, theory in these diseases is neglected, and we say read, study and place yourself in condition, that with personal instruction from the inspectors, you may be able to apply the theory and principles to your own conditions.

Do not be discouraged about asking questions, nor think them too simple to ask, for it that is what you wish to know, that is the one to ask. Remember, questioning leads to education.

The summer passes and if the flow of honey was free and your bees in good condition to take care of it, you now have honey to take off. This should be taken off while there is yet a little honey coming in, and placed in the honey-house to be cleaned up.

Now we are back to fall with our work, and we see that theory and practice must still go together. But our practice will be more successful if we read and study the experiences of our noted beekeepers. The watchword is study and think, but this alone will not make a good beekeeper.

It was W. Z. Hutchinson who once said, "We cannot learn beekeeping from books any more than a man can learn to be a physician from studying books. He will have an apprenticeship to serve in the dissecting room, and it is the same with the beekeeper, he, too, must dissect subjects in the beeyard before he can diagnose a 'case'."

I agree with that thought expressed by Mr. Hutchinson, and especially is it applicable to the inspectors.

University men with the theory are only half ready for the work, they need real, true practice before they are ready to diagnose a case of foul brood and give instructions for its treatment.

Again we have seen from personal observation that a man that could pass the best civil service examination for inspection work did not come up to the standard in real work and the art of handling men. Here again comes Mr. Doolittle's suggestion, do a little thinking on your own hook, and take into consideration the conditions and the men you are to work with. Combine theory and practice and tact with good will toward your fellow beekeeper and success will be yours. (Applause.)

THE PRESIDENT.—This paper is open for discussion.

MR. STEWART.—The only discussion is that it is excellent all the way through.

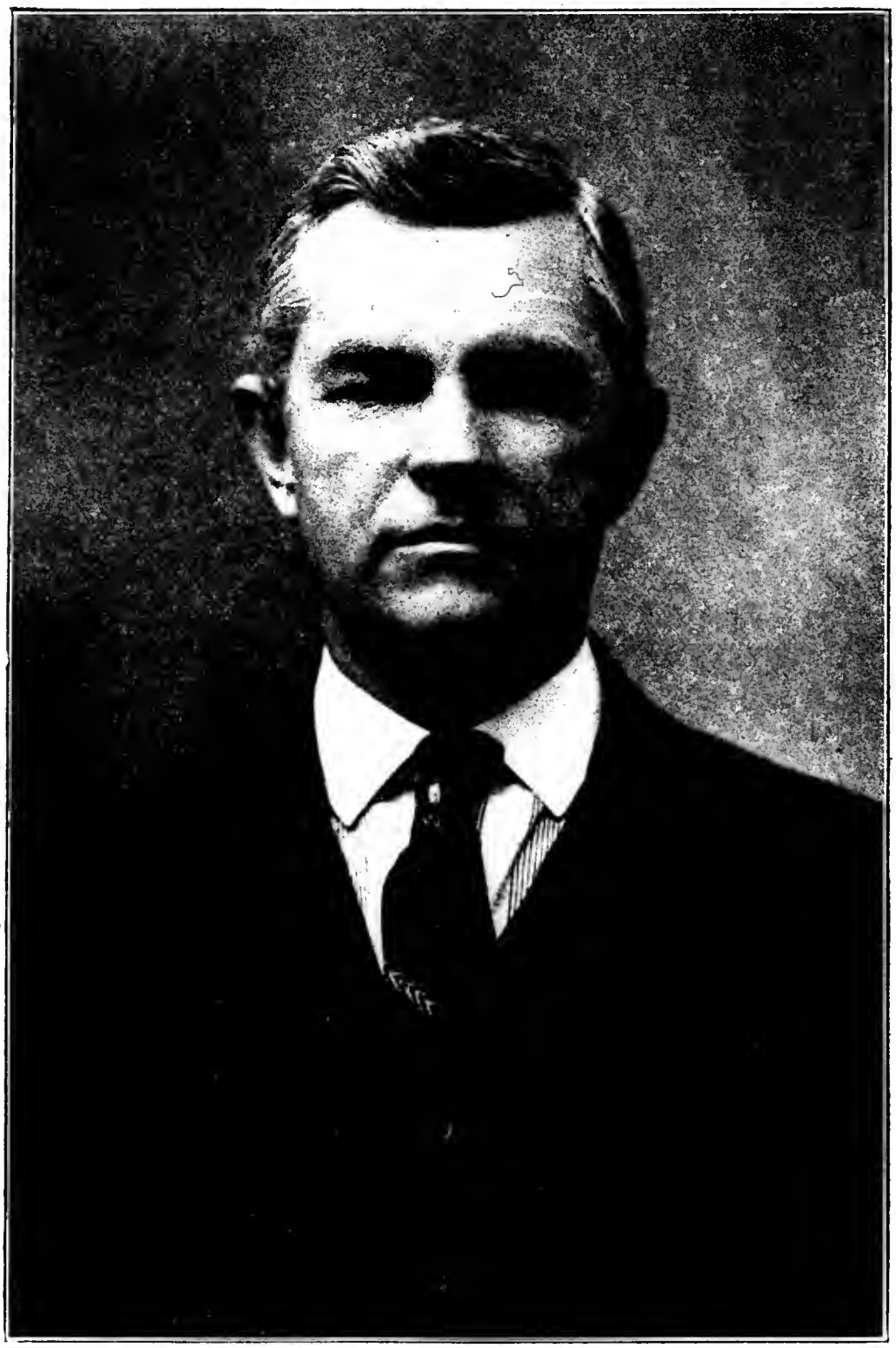
THE PRESIDENT.—I agree with you on that, absolutely. Any questions. We will now have Mr. Smith's paper. Mr. Jay Smith of Vincennes, Ind.

MR. SMITH.—Mr. President ladies and gentlemen: I am certainly mighty glad to be here in Illinois. I claim Illinois as my home state. I was born in Whiteside County. My father likes that county so well he is still living in his ninety-fouth year there, and still growing strong. I am trying to imitate him, I want to live to be one hundred years old, to see if I can't learn a little bit about bees. It seems when we learn one thing about bees, we find two things we don't know. We learn those and then there are four things we don't know, until we get along as far as Dr. Miller, when he says, "I don't know much about it," but if he didn't there is no use in the rest of us trying to learn.

In talking about queen rearing, I do not offer any objection to being called a crank on the subject of queens. I believe beekeeping can be summed up in a short way, in two points, good young queens and a large brood nest. Of course there are lots of other things that go with it, but if a person would know that much and practice it, he would be surprised at the results he could get. The only reason we are finding out the large brood nest is important. I would as soon have a poor queen in a single story eight-frame hive as a good queen, because the poor queen would stand some show of filling that up and giving a surplus. A good queen would fill it up and cause a swarm.

I am not saying anything against the eight-frame hive. The object is a large brood next. I don't believe many of us still realize the importance of a good young queen. The best queen you can have is one you rear yourself, in your own yard. It has been preached to us enough and we think we know that. For instance, people say, "Fresh air is good for you." Do people know that fresh air is good for them, when there are six hundred thousand people dying every year with tuberculosis and four million more have it and they are going to die with it, largely because of the lack of fresh air. Do people know fresh air is good for them? They do not, seemingly. The same way with beekeeping and queening.

I met a man the other day who had two thousand nine hundred colonies of bees, and he never raised any queens. He said he expected to double his apiary next year. How are you going to do it? He said



MR. JAY SMITH.

the way we all do—it was in California, and they do have some beekeepers out there, that will surprise you the way they do things. This man was a successful beekeeper in Santiago. He said they split the colony half in two, gave each part a new stand and let it go at that. They do not care which one the queen is in. If she is one part the other part of the colony will raise a new queen. If the colony gets too weak, they set it on top of another one and let it go at that. If one honey flow fails they will move to another. Only recently are they waking up to the importance of young queens, because of European foul brood, which is putting them out of business in a great many cases. I doubt whether European foul brood prevails through your districts, but Dr. Phillips tells me it seems to be epidemic only in certain localities, owing to the honey flow. A light honey flow will cure it in a great many cases, but conditions are right out there for European foul brood, so they are finding out if they rear queens themselves and give them queen cells, and follow that up, they can almost forget European foul brood, in fact I know of a number of cases where this has been successful.

In one place there were two apiaries close together. They had an inspector out there. He would go and look over the bees and say, "Your colonies are diseased. Your apiary must be cleaned up. I will be around in ten days, if it isn't clean then I will burn it up for you." He didn't last very long, but the law-abiding citizen burned up his colonies and went out of business.

Those people were close together. They followed instructions as best they could and destroyed the combs. I think there were seventy-five colonies, which he shook in one hive and burned up most of them. He had one colony when I was there, and they didn't look like they would last till spring. His neighbor, not over a mile away, got some information on this, and when the inspector came around he said, "I want to follow instructions all right, but I have here a letter from Doctor Miller, from the Root Company, and Dr. Phillips at Washington, and I get Dadant's journal, and they all say it is criminal to destroy good combs and colonies slightly affected with European foul brood. I am not going to destroy them, and neither are you. I am going to take care of this as best I can." He bluffed the fellow away. He had one hundred and fifty colonies with no trace of European foul brood, he said. I looked through his yard and couldn't find any. He had a surplus of about one hundred and fifty pounds per colony, and he did it entirely by raising his own queens and giving each colony a right queen cell at the right time.

There is a good illustration on the value of young queens, one man out of business and the other man doing well. He said he had forgotten European foul brood. He said there is a certain time when it doesn't hurt to have a colony queenless for a certain length of time.

I requeen every year and pay no attention to European foul brood. Of course, American foul brood is a different story. I just mention those few things to call your attention to the fact. I don't believe there are any of us here, including myself, that fully realize just the importance of the young queen.

The Greeks have a saying that anything that is worth learning is worth learning three or four times. I learn that every year, and last year I learned it again, in a very peculiar way.

I had two colonies side by side. They were packed in sawdust. Even in our mild climate I think it pays. I was behind with orders and wanted to sell off the queens and thought I would requeen all of them. One of them looked like a fair queen, and I thought it would hold over. The other one was a nice queen. They went through the winter, the old queen died and the young queen was good. The other I gave a queen cell later, and it built up the colony so it was a good colony. By selling off a queen for a dollar and a half I lost forty dollars just as plain as could be. After a fellow has a few lessons of that kind he will begin to see it pays to have good young queens.

As to how often they are queened, that is a matter of judgment. I queen every year because I work my queens pretty hard. I formerly sold packages of bees, pound packages, but I have discontinued that. You can hardly get a price that will jutsify the sending of a pound package. It hardly pays to take them out if he has got any kind of a honey flow. I used to shake out bees and the queen would keep on laying for the entire season. I found that it was very seldom a queen would do very well the second year with that kind of handling. Where running for honey alone, it is probably a different story.

Methods of rearing and queening. I haven't anything revolutionary to tell you. The simplest way of course is the way I am telling you, take out a queen and they will rear one. That is the poorest way you could rear a queen, because if a colony is queenless it is in an abnormal condition. There is scarcely any condition in nature where a colony would lose a good queen. There are some once in a while. The queen occasionally takes sick and dies. I have seen once in awhile a good healthy queen laying out dead. In that case the bees have to resort to rearing a new queen under the queenless impulse, but under a condition regularly what the bees want is a queen as quick as they can get one. They are in a desperate plight. They do not care how good she is, or how poor, they want one right off, and they can later supercede her if she doesn't come up to their standard. They frequently choose larva too old, and the older larva they choose, that queen will hatch first, and so if you leave them to their devices the poorest queen they raise will be the one in there from the oldest larvæ, that will hatch first.

One can modify that a little by culling out and selecting the lively cells, and get fairly good results. There is a modification of Dr. Miller's method, that I have found for the person who wants to raise twenty-five or fifty queens a year, that is very good. I go to the best colony I have, one that contains a breeding queen, and give her an empty comb in the center, and in about two days I look and if there are a good many eggs I do not allow them to hatch. Dr. Miller allows them to hatch, and trim off the comb around the larva. I prefer to take them when they have eggs. Then I go to a good strong colony and take away their queen and all their brood, and set this one frame in that colony. I have noticed frequently that they will enlarge those cells around the edge before the larvæ ever hatches, but not always.

Usually they feel the larvæ as soon as hatched and float it out, and build a cell down over the comb, and very frequently I have seen them enlarge a cell still containing the egg. Sometimes they will put a little larva jelly in the bottom of the cell by the first egg before it is hatched. They seem to be anxious to feed that when the baby arrives.

Of course when these cells are completed you treat them the same as you do any other, that is you use the same method. That is the method I like best, except the grafting method. It has some advantages and a great many disadvantages. That must be done during a honey flow, for if there is no honey flow you will have to feed. The disadvantage is if you are requeening any number, you do not know exactly when the queen are going to hatch, and if you wait a little long and one hatches too soon, you will have trouble. If you anticipate it too far ahead and cut out cells and put them in a queenless colony, you waste several days waiting for that to hatch.

The grafting method was originated by Mr. Doolittle, and it is pretty difficult to improve very much on what Mr. Doolittle did. If we try it we find ourselves going back to him. I think every one that has five colonies of bees ought to have Mr. Doolittle's book. Mr. Doolittle was a profound student, he advocates some things in there that I believe, if he had lived and worked five or six years longer, he would have discontinued. I sold some virgin queens and I said the balance I believe is going to increase. I didn't have a virgin. Some good beekeepers do that. Wesley Foster buys a good many virgin queens, and I do not see how he can buy a virgin queen and have her shipped through the mail and have her put in a nursery cage and put in a colony and have her worth five cents.

The virgin queen the moment she puts her head out of the cell ought to be fed by nurse bees. That is the way they are taken care of in nature. It isn't theory. I have owned five hundred nursery cages and I will sell them awfully cheap. I will never use another one, the way I look at it now. I have tested them out many times. In one particular case I took cells out of the same batch, and put some in nursery cages the day before they were to hatch, and allowed them to hatch them, and a like number of cells I gave directly to the nucleus. As soon as these hatched in the nucleus I introduced them in good shape. It took about three days. Every one that hatched in a nursery cage was delayed in its mating or laying eggs, exactly the time it was in the nursery cage, or were delayed three days.

Out of a large number tried, every one hatching in a cell with one exception was laying before the first one was laying that hatched in a cage. That ought to be evidence enough that a virgin queen ought to be among the nurse bees the moment it hatched, yet there are good beekeepers who will buy virgins. There are one or two queen breeders who make a specialty of shipping virgin queens and nothing else. I have sometimes thought I would buy some of those for experiment.

We are getting methods of that kind, so that we are getting away from nature. Another thing I do not like is the cell protector. I do not believe it does any good in the first place. If you put a cell in a

cell protector and the bees are of such a disposition that they wouldn't accept the cell, you may be sure they won't accept the virgin when she hatches, because they will accept a virgin queen before a laying one. If you leave it in there till they do accept it, you might as well leave them queenless for the same length of time.

In the Doolittle method, you are probably all familiar with that, he dips his cells. I have a system that holds twenty dip cups, all galvanized iron, and they slide through that easy, so we dip twenty times, and the directions they usually give is dip twenty cells, put them in hot wax, and put them on your paper. They won't stick there.

In the paper just read, there was one splendid suggestion and that is, do all the work you can in the winter out of the way. If you are grafting many cells, these should be deeper, and all that work done in winter, get that out before the rush season. They must be wrapped up and put away to keep all dust out, because the bees have to clean it out, and they clean out the larvæ too. I never measured many cells, I don't know the exact size, but I know a good many of the sticks they send out are too large. The theory is that the queen cell is larger than a worker cell, and makes the queen, consequently as you make a queen cell still larger you have a better queen, but the bees don't see it that way. They usually won't accept it; it is unnatural, if too large.

You notice some queen breeders use drawn comb for grafting, and get good results. I have tried all kinds, even deep cells, as worker cells and larvæ they will accept and make just as good queens out of small cells as worker, but they have to float them down and make the cell larger below, but a cell a trifle larger than a drone cell is the size I make them.

In nature the bees keep the queen cell narrowed down in the entrance, so that only one worker bee can crawl in. You may have noticed a worker bee feeding the larvæ and trying to back out and its feet would get caught. They keep the entrance to that cell just large enough for a worker to crowd in and out. I presume it is to preserve the moisture or heat, or something, so if you could make a cell large inside and the end of it small as a worker cell, you would have perfect cell, but you couldn't very well dip one of those, so a compromise is to make the cell small and have it just as flaring as necessary in order to get of the mold. In fact, you can make the walls almost straight. You will find they will accept many more cells that way, and when once accepted they will go ahead.

Different people have different methods. What will work with one will not work with another. One man had a machine that would stamp the cells. I got one and stamped the cells, put them in the swarm box, and they wouldn't accept any of those, and they did accept all of mine. The cells were large and shallow. I don't know how the men that invented it did, how well he liked it, but I threw the thing away. I would rather have them dipped.

You can buy cells ready-stamped, but most of them are too large. Some use the wooden cell cup. I used that for a long while, but I find there is no advantage there. The difficult feature with the cell cup is that they have a nail in the base. Now they tell you to stick them on

with wax if you use a wooden cup. No advantage at all. It is a great disadvantage to use a wooden cup. You have to keep saving them, and a wax cup and all has a number of advantages. It doesn't take up so much room. If you have a nucleus a little crowded the cup will spoil the cell, but one made out of wax you can press in the comb farther and it doesn't interfere.

The making of the cup cell is a very simple matter. There are several ways of getting them to accept the cells. The difficult part of grafting is to get the cell started. After you get them once started you can get colonies under different circumstances to go ahead and finish the job.

Bees have a very peculiar instinct. One is that they are great finishers. They are not much to start things, some of them, but once started they want to see the job completed. You see that illustrated in a great many ways. If you put on a common honey super without any drawn combs they don't want to go up in there, they would rather swarm. But you put a few combs in there and get them once started, you can take that one off and set another one on, and they will go right in and up and to work. Having once started a job, they want to finish it.

Mr. DeMuth tells us that the secret of keeping them from swarming is that bees want to finish the job, so always see to it that they never have their job finished, always give them empty combs and sections ahead, so they will feel they have an unfinished job. The same with the cell. If you can get them started, instinct will tell them they must go ahead and finish.

I have had some very peculiar accidents along that line. I had some cells nicely started and gave them to a colony to be finished, taking out the queen. They did a fairly good job, though, they finished three or four in good shape. After a short time I looked in and they had as nice a laying queen as you ever saw, got in there by mistake, and yet they finished the number of cells. Evidently they thought somebody had started those cells and they ought to go ahead and finish them, and there was nobody around to tell them to stop. I have had a great many cases of that kind.

The method that has been advocated to get cells started is a very good one. Go to a colony and take away the queen and all of the brood, and give them the grafted cells. I do not know where I first ran across that, but in looking over Doolittle I found it there, I cannot claim originality, or that I was the originator of it. It is very good. But Doolittle originally devised the scheme of getting them to finish above the queen excluder, and I think that is the best way when your colonies are strong, or during a good honey flow.

To go back to the grafting. It is a simple process. A great many people have spoken about the results they got by grafting, what a grafter they were, and the results they got, supposedly from a good job of laying the larvæ in, but I have found out that in itself is a very simple process. You can take anybody that has good understanding and show them, and inside of an hour they can do just as good a job as anyone else if they are careful. The difficult part was to get the colonies and

the bees in the right condition to take care of these things. Ladies especially are good at grafting larvæ. They are used to handling the needle and their eyes seem to be trained for it. I let my wife do that two years ago, and she did so well she has had the job ever since.

There are several features about the grafting that a person needs to observe. I don't say anyone who never had any experience could go ahead and do it, but you could. You have to show them how, but if a few very simple rules are followed, it is quite easy. I have always said you have to have a very strong light in order to see the larvæ well, but my wife can take it in the house when it is cloudy and do very good work. So it depends on the light. If you are in the bright sunlight on a sunny day, it will touch the larvæ and your cells will dry too rapidly. It is better in the house. I used to, on a hot, dry day when the atmosphere was exceptionally dry, sprinkle the room to keep the larvæ from drying out. And Mrs. Smith told me another thing, what is the use of moistening the whole room? Wring out a wet towel and lay over the cells after you get them grafted (laughter). I had never thought of that, and some of these little tips are more valuable than you can imagine. After you graft three or four bars—we graft three before we put them in to be finished—after you graft three and the atmosphere is dry, and you put in the royal jelly, it will dry up, but if you lay a wet towel over them it will keep them moist and free from dust.

Royal jelly I have found is a necessity. A good many can graft and get good results without it. I have tried a number of times to abolish royal jelly in grafting cells, because it is somewhat of a nuisance, but after trying it different times for ten years off and on, I find with me it is one of the essentials. When there is a heavy honey flow coming on, and not a light honey flow, and the conditions and everything are just right, and there is lots of food around the larvæ laying in the worker cell, when you dip that out you get enough of it, they can get by all right, but even then a little royal jelly is a benefit. But where you have to depend on raising queens the royal jelly is very good. You will get a larger percent of them to accept the cells, and the bees will take hold of it sooner.

About the first thing after you put in the jelly they remove it, take it out. I don't know whether they eat it or swallow it or put it back, but I have sometimes put a spoonful of jelly on the frames, but I never could see it had any special benefit. They seem to take out the jelly the first thing, and in doing that they moisten the larvæ and immediately put in more jelly.

I learned another little kink, the trouble in getting royal jelly, and how to get it. J. W. Jords, from the Imperial Valley, two hundred feet below the sea level, there it gets one hundred and twenty-five and thirty in the shade, and the air there is so clear, no inkling of a haze at all, and it is one of the best bee countries in California—Mr. Jords is there and he says, "Do you know royal jelly will keep from one season to another?" Yes, it will, we have bottles of it and keep it over. I don't know if there is any special advantage in keeping it from one season to another, but I adopted his plan and I find it one of the handi-

est things I ever tried. I use this (indicating a small container for cold cream). You can't use a bottle, because you can't get the jelly in and out. Get something like this, from your wife's dressing table or manicure outfit—you will find one something like that—this one has Melba on it. I put it in and then pour in beeswax so it will seal well. The nice thing about that is that I can carry it in my pocket all the time. I have made a jelly spoon to dip it out with. Those you buy are too long, and you can't carry them in your pocket. I whittled this out of a toothbrush handle—got it out a manicure outfit, too. I carry those in my pocket and when working with the bees I have them handy for use as needed.

How can you get the royal jelly? Dip down in the cell with the spoon. During the season I have never yet had to hunt for royal jelly because I have two of these. By keeping that tight the royal jelly will keep indefinitely. These are some of the little things that help. Not all beekeepers are as accommodating about certain things as others. Once in awhile you find a fellow who thinks he knows it all and wants to keep it all in his hat. I ran across a fellow like that out west. He said he had taken a short course in beekeeping the year before. He said, "Those fellows are all writing to beekeepers, telling us what to do. I was in business before they were born." I was explaining something to him about grafting, and he said, "I had that twenty-five years ago." After it was overwith he said, "There is one thing you said that has always puzzled me, and that is moistening the rolay jelly. I put it in here, then put in some distilled or rain water, stir it till it is thin, about the consistency of the royal jelly you will see at the bottom of the workers' cell." He thanked me very much for that. He had found out some little thing that even he could not learn.

About foul brood, we do not want somebody to come into your territory with foul brood, because there is a menace in moving bees around, but we had a law prohibiting anyone from moving bees that had European foul brood. That meant every one had to stay in his own place because they all had it. This fellow that I speak of was an inspector and he said, shake for your foul brood. Some people think that he is such a big man and the world is so small, there isn't room for another one like him, and he wants it all himself. He is afraid somebody is going to move in and bring bees within four or five miles of him. If they would pay more attention to good queens and have large hives, they would never know whether there is anyone else there or not.

In grafting with jelly keep it rather thin. I like to sit down in a chair and take the bar with the cells on. You just graft them in a hole and they work fine until you use them once, and then they got all stuck up with propolis. After going around and trying them all I came back to Doolittle's good old method, and I don't believe it can be improved upon.

I don't suppose anyone here ever visited the Davis's in Tennessee, but if anyone here has ever visited John or Ben Davis, I would like to ask them a question: They use drawn comb for grafting, and I have often wondered why. Mr. Pellet writes it up. I want to find out why they use drawn comb to graft. After you have grafted it seems

to me the cells are so much better. They couldn't get any better acceptance, because if you work it right with the cells you will get practically all of them accepted. I know that when we have had twenty on the bar we have had an average of eighteen out of twenty accepted, over a long period of time. Very frequently we would have sixty we put in a swarm box all complete, not often, but we have had it done; so if a person grafts carefully, and if the cells are in the right shape, take larvæ of the right size—and it is difficult to describe that—say about twelve hours after it has hatched, I use it as small as you can see it, but some people can see it as soon as it gets out of the egg, and they won't accept them that way. I don't know whether it is the handling that injures, or whether the bees don't like it. If you put eggs in the cell alone, the bees won't accept it. The nature of the bee is peculiar. I don't know why they do that, unless they reason that if there are eggs there is a queen, and she is superceded, and in superceding they seldom have consideration and accept the eggs.

I used the Swarthmore method, and once I thought it would be nice if I could get the queen to lay in the cells. I had no difficulty in doing that. We got them all and put them into a small nucleus, giving the queen no other room, and she laid all right. She never laid any drone eggs. Then I take them out and put them into the bigger flange cup and give fifteen or twenty to a colony. Four is the most that they have ever saved, but they usually save two or three, and sometimes four. Why they did that I don't know unless it was because their nature told them if there were eggs there there must be a queen. If you take the young larvæ, the same principle hold good, if such very young larvæ is there, there must be a queen, but if you get larvæ fourteen to twenty-four hours old, they seem to take it for granted that the queen has been out for some time, at least that is the way they argue.

The method of starting the cells after they are grafted you probably have heard a great deal about, especially the swarm box. I experimented with that about ten years ago, and got some excellent results, then I discarded that method and went back to the Doolittle method of the queenless, broodless colony. Several years ago I tried the swarm box again, and found it so much superior that I used it exclusively. I modified it slightly. I used a box wide enough to hold 5 standard frames. I use the Jumbo frame. Five frames, putting in two, one on each side. I see that there is a little pollen, a little honey, and some empty cells in the comb. There is no special advantage in having pollen in there. Theoretically, there is. They can't produce royal jelly in any quantity without some of this kind of food they get their pollen from, but from a practical standpoint they have enough of that already in their systems.

Then I make this box by putting a screen on the bottom, and I put on some legs, with a space of about two inches underneath. I go to a colony in the morning, and find out if they are queenless. Two hours is plenty long, and I have had very good results when I was hindered in putting them up, in getting them to accept it in an hour. I like to shorten the time as much as possible, because when bees have been confined in the box about so long they refuse to do good work. I don't

know whether they want to fly or not or whether they run out of royal jelly, but they shouldn't be in the box longer than twenty-four hours to do good work, so if you leave them queenless four or five hours they will lose that time that they would be working in the larvæ.

I usually go to the yard about one o'clock and leave about three. You don't want the light straight over your head. I prefer grafting inside of a house for several reasons; it is cooler, you can see better with a shade in the house and do better work with the comb. Your eyes seem to take the light better. Then you can lay the cells out of the hot sun and you are away from the robbers. Even when there is a pretty good honey flow, the robbers will find it out and make themselves a nuisance. Your combs are kept cooler. If you take a comb out of the colony to be grafted you shouldn't keep it out over three or four hours. They seem to commence to dry. If the larvæ gets dry so you can't graft, you put it back in and get another one.

We like to graft about three bars of twenty each, sixty cups, and put them in one at a time. The holes are in the top of the swarming box. If we used the Swarthmore method it would take a half day to do as much as you can do in an hour this other way, and it is absolutely no better. I have tried them side by side. You can graft the sixty and put them all in at once and get as good acceptance in every way as you can by putting them in one at a time. They have more food than they can use anyhow, and it doesn't get dry, they are just exactly as well off.

I do not know who invented the swarming box. Swarthmore uses it. Doolittle doesn't mention it. There is one other, Alley, I think, used it. The one I have I like very well. I make two covers and put on it. The first cover has a square cut in the top so you can set down all the bars in there as once. I have two blocks at each end, so the bars rest on those blocks. I have another cover or slide over the opening, to close it. The first cover is to keep the bees from crawling up. When I put them in, I lay the three down so the cells are up—take this box (illustrating) I have a funnel top. I go out to the bees about one o'clock. First I weigh them out, I find five to seven pounds is about the right number. The more the better off you are, just so you don't crowd the box. I make the box large and have it well ventilated.

You have to have powerful colonies to take seven pounds away and leave enough to take care of the brood and keep the queen good. If you use the same comb over and over, you will have to be giving that some brood to keep it up, because these bees being taken away so much, the queen doesn't like it so well and the colony will run down in strength, but you will be surprised how well the queen does if you take away these bees. It doesn't injure the way you might think it would.

A good basement is important to put this in. The reason I had a failure about ten years ago, when I tried the smaller box, it worked all right in the spring, but by and bye it didn't work so well and I wasn't sure what was the matter. I gave them water. I could do better out of doors with a queenless, broodless colony. I had a good concrete basement, and I piled up hives and supers to make it dark at one corner and have access to the place so I can walk in without opening any doors. That gives them plenty of fresh air and ventilation without

the light. The temperature varies but little there. In cool weather it is good, because if an ordinary cool spell comes up in the spring, it is warm in there. I have had them in there when the temperature was 106 outside and they did exactly as good work as they did at any other time.

I have personally weighed them out sometimes to know how many to put in. You can judge about how many ought to go in, but I don't like to miss the four pounds, or at least five to seven pounds of bees. You must give them plenty of ventilation because they generate a good deal of heat.

I put these bars down inside for another reason. Bees can cluster over bars and keep everything the same temperature as the hive. When I come to the grafting cells I lay them down and pick up the swarm box and give it a little jar on the concrete floor. The bees are clustered in this vacant space and they drop to the bottom in one mass or cake. I put the little sheet with three bars in there, and slide the cover on them. I have seen it done repeatedly. The bees will cluster on the cells, on the three bars, and all hang together, and they have been without brood for two hours.

They should be taken from a strong colony with a good young queen or prolific queen, so there is plenty of unhatched larvæ. These nurse bees have been feeding this larvæ to the highest degree. Take them away for two hours, and this royal jelly accumulates, and they have a lot of that. In about two hours they realize they are broodless and queenless. They want a queen, and they want some brood at the same time, and they have got the food, so they immediately take hold to draw the cells out. They have the instinct to build combs, but they do not do that while they are queenless. If they have a queen they will immediately begin to build comb.

I have examined stands inside of an hour, and I found the cell already shaped nicely and commenced to draw the eggs in immediately to make it small so just one can get in. The little larvæ in there would be literally swimming in thin, transparent liquid in that length of time. You can take those out early next morning, but the cells will not be progressed quite far enough, the larvæ won't have sufficient size to do the best work, so I prefer to leave them in till next evening, about three to five o'clock. By that time all of the cells will have been drawn out nicely, and the larvæ literally swimming in royal jelly.

Then we give that to a finishing colony, down in a dark place, and the bees seem to be content. Bees sometimes try to get out. Once in awhile one starts it, and you will hear them roar just for a little time, and you would think they were all down on the screen trying to get out. I find them clustering on the cells. A dozen or two bees at the bottom, roaring, will make a lot of noise, but they seem to stay right on the job.

There are several ways, of course, to finish the cells. The most economical is over the queen excluder. In order to get them finished over a queen excluder, the colony must be extra strong. When a honey flow is coming on they will be in splendid shape, but when that is over you can hardly get the queen interested in the job long enough to keep

on laying, to keep the colony up where it should be. Then I go to other colonies, get hatching brood, and reinforce those.

Another thing to be done, the queen below the excluder must be replaced occasionally. The most troublesome thing you have is swarms during a light honey flow or when they are strong, and the queer thing about it is you can't tell when they are going to swarm. You can't tell by the queen cells. They will swarm when there are no cells in there except the ones you gave them and it doesn't do any great damage, if you have the queen's wings clipped. To prevent that, occasionally requeen. It is all right in a case of that kind to take out the old queen and let a cell hatch. You have got conditions for building as good cells as any swarming or superceding colony ever built. It is generally acknowledged the superceding cell is the best, but I found a number that were not good. I believe very frequently when they supercede a queen she is sick or something happens, and they do not do as good a job. I have one at home from an excluder queen, where I allowed her to supercede, and the queen looks all right, but she is a little crooked. I imagine this queen, being old, laid two eggs in a cell, and kind of deformed they superceded the queen. Put these in there (indicating) and the tenth day from the day of the grafting they must be taken out. They will hatch on the eleventh day usually, and ten days from the day you graft you take them out because they will be hatching. Leave them with the same colony to finish.

Different people have different systems. The one we use I like very well. We graft twice a week, Wednesdays and Saturdays. That times the thing so we take out the queens Mondays and Fridays, and that leaves them queenless, so that we put in the cells Tuesdays and Saturdays. That leaves the colonies queenless twenty-four hours.

I prefer to give these directly to a nuclei without any cell protector whatever. The objection usually had to these cells is the difficulty in getting them off the bar. They say they will build wax and stick them all together; with a sharp knife a slit is made in the bottom of the cell and they are shaved off. As you introduce them to a colony you should handle them as soon as possible. It doesn't do any harm to lay them on one side, if you take them out on the tenth day, because the queen is so far advanced there is no danger of injury. If you leave them an hour they should always stand on end. If you don't stand them on end you will have crippled queens. I used to think deformity was caused by rough handling, but I laid them in cotton as carefully as I could, and it didn't help.

I was talking with Mr. Snodgrass and asked him about laying them down on the side, and he said if the wings are not completely formed, laying the larvæ on the side would have a tendency to retard circulation and paralize certain parts of the body, and I know that is a fact. I find it is well to have a little box to put these cells in, all right side up. If you put them in inside of an hour and keep them out of the sun or keep them warm, if the weather is cool, you will practically never see a deformed or crippled wing.

As a matter of requeening, it is usually advocated to give a cell to a colony, remove the queen and give the cell to the colony. That is a

very good way, it saves equipment and some trouble, but everything considered, I think it is better to allow this cell to be put in queenless nuclei and introduced the laying queen to a colony. I do not like the idea of having a good, strong colony queenless, without a laying queen ten and twelve days. The theory is that if you have to do this after the honey flow is on, the bees that would have hatched if you had left the old queen in would have been consumers instead of producers. Possibly localities may vary, but I never saw the time where I ever had any colony too strong to suit me early in the spring, to get nectar from the apple blossoms and pears, to build up on, then from the alsike, white clover and sweet clover. Then you want them strong to build up for the fall flow, and then you want them strong for winter and during winter you want them strong.

One of the great features about wintering strong colonies in this way is that a less area is exposed to the atmosphere. If you have a real small cluster of bees you will have to have insulators, they are not enough to keep themselves warm. The larger the circle the better it is. You supplement that of course with such packing as you can.

There are several ways of using these cells. A good way is to give it to the colony to be re-queened. If there is European foul brood in the apiary that is especially to be recommended, because the bees seem to clean house better when they have a virgin queen in there. They expect her to lay, so they will polish up the cells nicely, which they will not do under any other circumstances. If you will look into a colony that is queenless, you can almost tell it. You will see scattered honey and pollen in a kind of shiftless way, but if you see a patch about six inches all cleaned out and polished, you know there is a virgin queen in there without looking further. They are expecting the virgin queen to lay.

There are several localities where they have only a fall flow. We speak about building up in the spring, you want your colonies strong early in the spring, but there are certain places where they depend on alfalfa in July. They have nothing before that. They go through the swarming impulse and then they commence to run down hill when the honey flow comes on.

It seems to me that would be the ideal condition, let them build up in the spring in a two-story hive, and then divide it and give the queenless part the cell, let that hatch; as the honey season comes on kill the old one and unite them by the newspaper method, and you have got two strong colonies as the honey flow is beginning. You are using one of the divisions as a nucleus. The only extra equipment would be an extra bottom board and cover, unite them and set the bottom board and cover away. You have the advantage of two queens laying there a long time, and after the honey flow comes on you have a young queen, reared that year. She will never swarm unless forced to do it.

Another way is to have a regular nucleus built. I don't believe in baby nuclei. It will take about one man's time to keep one hundred baby nuclei on the job. They will swarm out with a virgin queen, when she commences to lay, and when they come back and you turn a queen excluder, the first thing they want to do is to kill their queen.

When there is a swarm the drones like to gather in and go along. I had a baby nucleus abscond, the queen couldn't go with them, and when they got back they couldn't get in, there were so many drones along, so I used baby nuclei for three or four years, and gave them up, using nuclei with a standard frame. As to the start, it doesn't make any difference. I prefer a nucleus holding frames on each side, then I only use one with a division board. You can slide the division board over and find your queen immediately. Mr. Mendelsohn uses the eight-frame hive.

Some people are saying a great deal about the eight or ten-frame California hive, and I hope it will stay there. They call them the migratory hive because they move them all the time. The end bars are so long that they come tight against the hives, so when moving them they won't shake around this way and that way. I saw three of them demonstrating a hive. They had pickaxes and tools to get into the hive and tear the combs out.

This eight or nine frame hive has three partitions, making two compartments, has an entrance one at each end, and I stood on the blind side when he was working. Take that off, and you have three little covers that sit over. That outfit has some advantages over the other. He says one advantage is in this (indicating) pulls out the division and makes a colony over. I was going to pull mine out, but I have never done it. I was going to pull one out and double them up for winter, but I find a thin division board in there doesn't do any harm. You can just as well winter in a twenty-two frame as well as a fourteen frame, just as well winter two queens as one. That makes a splendid outfit then for a queen, just like the old queen.

When this queen is laying nicely, you want to requeen, kill the old queen and take the nucleus out of this hive to be re-queened. When you requeen, kill the old queen, put on a newspaper and set on the empty hive body on top.

I think Dr. Link invented that newspaper method. If you never used it, you want to get the habit. It is the nicest thing to unite colonies with, I ever saw. In theory it doesn't look very good. So I had some squares made and thought it would be much better, but it is a failure. The bees in the top part will half of them die. I don't know why, I thought they must fight, but I didn't see how they could fight through the screen. I think they worry and try to get down there, and if you look in there you will find a double handful dead. Take two newspapers, fold them, lay them over the hive and set the other one on top, this way (indicating). In this way you can move one hive a considerable distance and they will soon gnaw a hole in there, and they will unite. I don't remember ever seeing a single dead bee.

Another thing. Being confined that length of time and gnawing through, they seem to realize something is wrong and they mark the place, because if you take a hive a short distance away, and move it, when they unite you will find them going back to the old place.

One of the great objections people have to rearing queens and putting them into the colony, is because you have to introduce them, and that is why they prefer the cell. I have been making a study of queen

introduction, and those of you reading the Journal have probably seen something about the cage I have been experimenting with.

Regarding introducing queens; sometimes a person in the queen business will find out something from customers he would not find out any other way. The astonishing thing I found out was the number of queens there was, not being introduced. On one occasion a man wanted six queens early in April. I sent them. In a little while he ordered some more, and queens got cheaper. He ordered more. By and bye he wrote me a letter and said, 'I want to get one of your queens. I haven't succeeded in introducing one of them yet. What is the trouble?" The only trouble with him was that he hadn't been taking off the cardboard, off the cage. Where they follow directions with the ordinary mailing cage, there has been an appalling loss. Mr. Erban, one of the inspectors in Indiana, believes the amateur loss to be two out of three. I said that is awfully high. This man we spoke of, that had fought foul brood and raised his queen successfully, he has had what success you have. He said, I have been keeping track of it, and I have a loss of queens I get through the mails, being introduced, exactly two out of three, and he was an expert beekeeper. He followed the regular directions.

With the common mailing cage I find I get the best results if you take out a frame and put this down in the comb, and take off the card. The bees will cluster under there and get acquainted. I believe the people that follow that method lose fifty percent. I wouldn't put it at two-thirds, as a good many do. I had a letter from one man who said he wasn't interested in introducing queens, because he never had a failure. He said he didn't believe some people followed directions. He had good luck during the honey flow. Then he got another dozen queens, and he said he handled them in exactly the same way he did the first ones, and he had trouble. I said, that is nothing wrong. You introduced a queen in a cage of that kind, she can't live in there, and she has the scent of this wood, and she is a stranger to the colony. They can only get partially acquainted with her through that way, and if you would examine carefully before they are taken out very frequently you would find they are trying to get another queen, and will kill her off. They are waiting to eat her out of her cell, then they jump on her and kill her.

I think the mailing cage should be a mailing cage only, and not an introducing cage. I can't talk very long on this subject without mentioning Dr. Miller or Doolittle, Miller's cage is very much better than that. You have to transfer the queen. You ought to always transfer her. You don't know whether the person shipping her has got foul brood or not. He may have a certificate of health, stating that there is no foul brood in his yard. You don't know. I don't care who I get a queen of, I always burn up the cage.

The first cage is a Doolittle cage. This is made by Fowl of Riverside. That to my notion is the best cage there is. This man made a hole in there, so he could fill it with granulated sugar. That is Doolittle's method. It takes them about three or four days to eat through there. I called that the virgin introduction cage. I do not believe

in virgins. If a virgin were confined in there that length of time, she would be injured. But for laying queens that is one of the best instances of that kind.

There has been a good deal of talk lately about a queen excluding zinc placed over this, and there has been a controversy as to who was the originator of the use of this device, but a man by the name of Costello used it thirty years ago. It comes and goes. What is the trouble? In order to be of any advantage the bees will have to mingle through that perforated zinc with the queen a number of days. There is no short cut in introducing a queen. This business of taking out a queen and putting in another, and smoking them, you are lucky if you introduce them. You lose lots of them. You half drown them and all that. In a lot of so-called methods of introducing them they get a certain percentage of them introduced and they let it go at that, they lay it to the queen. Once in awhile they will smear honey on them. I don't think that does any good. If there are robbers around it does a lot of harm. When a colony gets in a condition that they want to fight robbers, you will know they have got a starving queen. The bees will cluster all around, and you can push the combs tight against it there and hold it there. You ought to have about two inches of candy and allow them to eat her out. But when there is a light honey flow on, you will get a large percentage of acceptance.

Worse than losing a queen is to have one crippled. Many queens are injured by introducing. You do not know it, perhaps. Perhaps you have seen queens that have been introduced, and you would find three or four days afterwards they are not laying. You will find bees tormenting them, and the bees keep picking at them, and you will see the ends of the wings all frayed out. Very seldom a queen treated like that will amount to anything.

Dr. Phillips tells us a bee as far as they can find out has no power to recuperate strength as compared with us. It has so much energy or pep, and when that is gone they are through. They can't take a rest like a human being and regain their strength. If that is true a queen that is worried, afraid of her life, has worried the best part of her energy away. I have seen many of those that never amounted to anything afterwards. Even worse is to have them injured till they will be a poor, in different queen. They will stay in there and carry a colony throug a honey flow and you will miss a good honey crop, because the queen was not properly introduced.

Dr. Miller changed that to a flat case so he could slide it in the entrance without taking out a comb, which saves that extra trouble. When I found out there was such a large percentage of loss among the queens, I commenced to review a good many of the methods used. I read Langstroth and Quinby and Doolittle. I read Doolittle every year. I found out that the pushing comb cage they spoke very highly of. I think Mr. Doolittle said he introduced ninety-nine per cent. Take a wire screen, cut out four corners, press it in. That was recommended by every one as a safe and sure method, but I wondered if that was true, why they have gone back to this cage (indicating). It is called the Benton cage. They said people wanted something simple,

they did not want to fuss with a lot of these things. I said there is nothing simpler and easier than that mailing cage, but it doesn't introduce the queens. That is the only objection. They all recommend this. Mr. Knott said they used to have what they called the Pan cage. It was a mailing cage and an introducing cage combined, pushing the comb cage. It had a wooden frame and tin slide, and when you introduced the queen you stuck a tin through the comb, pulled out the slide, and the queen got down on the comb. Knott said he used to introduce practically all of them that way. But he said it was a very poor shiping cage, having tin on the bottom the queens were killed, but they seemed to want the combined cage. I tried some of these, and I found the pushing comb cage when it didn't fall out of a place was quite sure, but I didn't find it as sure as they said. Once in awhile they would kill a queen, probably one in twenty-five.

Somebody spoke not long ago about putting a piece of perforated zinc in so that the bees would eat through the candy and get to this perforated zinc, then they would get to the queen one at a time. It didn't look as though it would amount to anything, but I like to try out anything with a semblance of virtue. It really was a splendid feature.

I wonder why you couldn't combine that with the pushing comb cage. I made a combination, and I have introduced a number of queens, and up to date I haven't lost a single queen or a single one as much as injured. I hadn't intended to ever make these, but I found what I wanted was a better method of queen introduction, so I worked it out, and the people are welcome to it if they want it. It is difficult for an ordinary person to make those teeth. You can make those and use a smooth tin if you want to. You can't press it in as well, it is more liable to fall out. But I will explain the working of this first. When a queen comes through the mail there is a cork in it like that. Take a mailing cage and that little tin on there, take that off first, then hold it up this way (indicating) and the bees and queen will all run up in there. As soon as you see the queen go in, put this cork in there. You will notice this perforated zince on here, and it is necessary to have it the right size. I used some old flat zinc with square holes, and it was too large, a queen would go through once in a while. This is a little smaller. I never had a queen go through that. All the workers will crawl out and get away, and that is what you want them to do. Doolittle says they cause more trouble in introducing the queen than the queen herself, but there is another reason why you want to get them out of there. They usually die in the cage immediately when you put them in there. You will find all the workers dead and the queen still alive. It is natural for the workers to get out, and they try to crawl out through there while the queen is satisfied to stay in there. You can start with as many of those as you wish, and the queen will finally be in there all alone. I would leave them in there only a very few minutes.

We have been using this for some time and we have no disease. Bees will eat hard candy when it is all dried out. The reason people have trouble with invert sugar is because of the fact that they make the candy too soft. Bees get a little of that smear stuff on them and it will

suffocate them. You wouldn't notice it on them, but they breathe through the abdomen and a very little on there will start them to worrying and they will die and kill the queen, too. So candy ought to be made very stiff. My wife makes fondant. It would go to taffy or get granulated. The only thing that keeps it liquid is the water, so when the water dries out it gets hard. You can mix a little honey with it. There is no grain in it, you can take it in your mouth and it will melt. No more grain to it than there is to butter. Take an old tough comb, it will not work on a new comb. It will fall out, the teeth will break through. You must have an old black comb with cocoons in it. The trouble with the push comb cage undoubtedly is that bees would gnaw under this and it would fall out. So we take this and push off the bees, don't shake them off because you can't shake them all off. Push them off, put this in, press it in about half way, then take this and drop that in place that way (the speaker illustrated the working of the device), and put in this metal blind over the zinc so the bees can't get to the queen immediately; take hold of this and press it in there as solid as you can. Otherwise when they gnaw in there and gnaw away it will fall out of place.

After using that for two days, open the hive and take it out. I have watched the bees go in there. It is very interesting. The queen is in there alone. If you can find hatch brood it is all right. It works just as well without. You want some empty combs and a little honey in the cells. The bees go in one at a time. The queen has been in there, and that is her home. When that bee goes in there, he acts like he is going into a strange hive. He is scared to death. They are afraid of the queen. They feed her, and she is hungry, and she will be laying in time in a cell. Another one comes in and the queen will get to laying and get up full speed in that cage. I have seen some cells where there were over fifty eggs, by that time the bees had gone in and fed her, crawled out through this opening, and in some mysterious way they communicated to the colony the knowledge that they have a queen. They would start on this little piece of comb; they wanted to supercede, and they started eighteen cells for her to lay in. They won't do that with any other cell. If they have her in one of these cages where the bees can't have access to her, but where the bees can get access to a queen through an excluder the whole colony recognize they have a queen, but they want to supercede her, and an old, decrepit queen is very easy to supercede. They seem to think, as far as we know, they have got a queen that needs to be superceded, and they start superceding her. So I leave that two days, then I take it right out. I have never seen a queen killed or injured.

Mr. Mendelsohn got two hundred cages of that kind. He used them during the whole season and introduced queens to lay workers and didn't lose a single queen. He says it is absolutely certain. A tinner can make these, if you can't, you can make a smooth tin around it. The Root Company promised to make them, but they have put it off. I gave it to them, I didn't want to get anything out of it. These two pieces combined I wouldn't be without for anything in the world.

Another thing, you can frequently save queens that would otherwise be lost. The bees accept them. On one occasion when I looked in, the queen was laying all right. There was a virgin hatched about the time this queen was released, and she laid one comb entirely full, then the virgin met her and killed the laying queen. It showed the bees were entirely satisfied with her, but things like that are liable to come up.

I saved two queens last year in a peculiar way in the same hive. This had been in there an allotted time, and I saw the bees balling the cage. I knew there was something wrong. I looked, and a virgin queen had got loose from the nucleus and had gone into this place. I don't know how they find those combs, but I know this, it isn't luck and chance, that they hunt out a queenless colony, because I have had so many cases of that kind. I know they couldn't go into all the others and be killed. I don't know that they really hunt them out or smell them out that way, but you probably have seen them go up and try to go into a colony, and they would get close and the workers would stamp on their hind legs. They would do that, and they would keep on trying to find one, and when they find one that would let them, they would go in. I found a virgin in there once, and I took out the virgin queen, and in a few days I took out this and saved the virgin queen all right.

I think I have said all I need to, more than perhaps you care to hear. If there is any discussion about this I will be glad to hear it. I don't claim to know all there is about queening. Here is a little bottle of royal jelly that I am keeping over till next year.

MR. KILDOW.—Your flat cage there is taken from the old Pete (?) cage?

MR. SMITH.—It is partly that and partly the old Push-comb, and this queen excluder, Costello got that.

MR. KILDOW.—I mean the other flat cage there is about practically the old Pete cage without the sliding tin, except the big hole you might say, and the tin over the face of it.

MR. SMITH.—This is what they call the Long Distance. You have seen the Pete cage.

MR. KILDOW.—I have used it some years ago. Your cage is good enough.

Whereupon a short recess was taken.

THE PRESIDENT.—Please come to order. If you have any questions you would like to ask Mr. Smith, or is there anything in the question box?

QUESTION.—What is the size of the swarm box you have mentioned?

MR. SMITH.—It is wide enough to hold five frames. If you made it the size of an eight-frame, it would take too many bees. I make it out of light stuff, but you have to carry it around out in the yard. I have two iron handles to carry it by, and the inner cover telescopes in, and you can shake the thing around and the covers can't fall off. I have a hole cut in the center with a mason jar, with honey in it. to feed while they are in here. The main thing is the feeding back and forth. They must have fed three or four days before they are in. They

will take a quart of diluted honey, and that makes a jar, but they do not seem to care for sugar syrup. Swarthmore uses a swarm box, and they used a cut of it in one of the government bulletins. I think it is better than the other. You take the queenless and broodless method. Take out the queen and all that brood, and set it back in there, which is a big job. You have got the nucleus queen, and put the queen over the excluder. If you have a colony strong enough you can brush the bees back and re-draft twice a week. It is a little hard on the queen. I have had one or two queens killed.

QUESTION.—Do you have a screen over the entrance?

MR. SMITH.—No, over the entire body. We have to have a good deal of foundation.

THE PRESIDENT.—Anything else? If there is no other question, there is a very important subject to be taken up at this time. That is the question of our joining the American Honey Producers' League. The question is open for discussion. I think Professor Paddock here could probably tell us more about the league than any other man present. We would like to hear what he has to say about the matter, and about what it would cost to join.

PROFESSOR PADDOCK.—The American Honey Producers' League stands for the advancement of the industry, and I believe we all appreciate that. The constitution as it was written out asks that any state joining the League send to the secretary-treasurer of the League a dollar for each one of its members, with the proviso of one hundred dollars as a minimum. The League had a meeting in Chicago, an open meeting of the executive committee. The executive committee invited friends of the League to meet there and thresh out some of the points in question, and the one of most importance at that time was that the different associations could not be expected to send a dollar to the league for each member of the state association. In Iowa, for instance, I realized very clearly that we could not this year expect all of the members of our association to see the advantage of the league and be willing to subscribe a dollar. What our association did do was to guarantee the league a minimum of one hundred dollars, and as many of our members as see fit will send in their dollar, and the balance will probably be made up out of the funds of the association. We hope to grow from that so that in the course of four or five years all of our members will see the advantage of the league and will become members. In four or five years we will then have our membership, also the membership of the league.

The same question came up in Wisconsin. They are developing a second organization, which is a buying and selling organization. It is the intention that all the members of the organization will eventually become members of the buying and selling organization, and that only one organization will retain their membership and eventually be a member of the league.

Another step was taken. In so far as the League has not been able to or has not rendered any positive service to the beekeepers of the United States, the membership taken now will be dated for 1921 mem-

bership and not 1920. Those states which have paid in their hundred dollars will be given credit for 1921 membership. Are the people familiar with the work of the league?

THE PRESIDENT.—Just a few of them. I don't think they all are.

MR. PADDOCK.—The league is a co-ordination of the state societies of the United States, Mexico and Canada—possibly farther than that later on. It hopes to act as a co-ordinating force for the various state organizations. The league is composed of seven bureaus: marketing, legal, educational, and others, seven in all. The bureau on marketing will have in its hands information which will assist the beekeepers of this State in their marketing problems. It will have available information as to the honey contained in Philadelphia, and advise other state associations to shop to Philadelphia or not to ship to Philadelphia.

There is one view held that is not correct. The league does not attempt, or will never attempt to sell anybody honey. The league is a service proposition and can serve only when called upon. It will not dictate in any sense of the word at any time.

Another value of the league comes out in their legislative committee. Right here in this State you probably have some problems about education, about foul brood inspection, and about appropriations. Now, Mr. Kildow has given you some information. The committee of the league will have on file a copy of each law and a copy of the appropriations, and probably the comments of the various men in charge of the foul brood, so that if you are interested in any changes, you would write to that committee and get this information, a summary, perhaps, of the systems which had proved most satisfactory, and the average amount expended in the work.

Another aim of the league is to correct differences between beekeepers. For instance, there is a great deal of dissatisfaction on the part of those receiving the packages, those receiving queens. That may not always be the fault of the shipper, may not always be the fault of the receiver, but there is a difference there, and we had this case come up in Chicago: a beekeeper from Montana had consigned some honey to a broker in Chicago, and the broker had refused to pay anything on that shipment of honey. The league proposes to assist that beekeeper, if he is a member of the league, to get a one hundred per cent settlement on that shipment of honey. It does not guarantee that, but the point is that if an attorney representing the American Honey Producers' League takes care of such matters the broker will not fight it, whereas he would an individual beekeeper, because the league's representative would call upon this broker personally. Such services as that is what the league expects to put over.

The league has been voted upon favorably by virtually every state west of the Mississippi River, and the states east of the Rissisippi River are rapidly approving and will take membership in the league. The league has the support of everyone connected with the industry outside of the producing one, that is, the supply manufacturers, the beekeeping publications, etc. It is quite probable that the league will put on an advertising campaign in the near future to increase the consumption

of honey, believing that at the present time the public needs to be educated to the value of honey to increase the consumption.

That is verbally some of the things the league hopes to do. I would be very glad to answer any questions that I can, that you might want to ask. If you do not understand this clearly you should ask questions, and it is a matter of vital concern to the beekeepers of the country today. It is just as logical, I believe, as it was for the states to come together in their government. It is a co-ordinating agency, as I see it. Today Montana and Utah are shaking in their boots to know how much honey there is. They want to know where to send their honey, and that will depend on the whole situation. It is hoped that the league will be able to co-ordinate the marketing and relieve Montana so that they will be relieved of the ill-advised shipments, say, to Kansas City, when the Kansas City market has been supplied. In this State it should be of immense assistance to you in establishing a system of educational research work, and in bureaus of legal aid.

Another point that came up was, how much tariff should we ask Congress to put on honey? Who is going to solve that? Is Illinois or Iowa or California going to solve that? It is a matter of national concern. I mentioned yesterday the honey coming into this country and what it is doing to our market. That is a tariff question. The league is already at work on it. It has a committee appointed which is now at work, and it hopes to make its recommendations to Congress. Those recommendations will be of assistance to Illinois beekeepers and to beekeepers of every state in the Union. The league will carry on a national advertising campaign. They probably will not get very far, because Mr. Dadant tells us it costs twelve thousand dollars for a back page in the Ladies' Home Journal, per issue. It is a matter of getting finances to start with. They are going to raise as much money as they can, put it in the hands of some recognized advertising agency and allow that agency to dispose of that money to the best advantage. I think that is very logical, too.

MR. SMITH.—It seems to me that alone would be worth the membership fee.

MR. PADDOCK.—The beekeepers are not going to put up that fund. That fund today is being raised among the honey bottlers, the supply manufacturers. That is the one thing that developed most forcibly at the Chicago meeting, that this problem of relieving the honey situation is felt more keenly by the men who handle honey than it is by those who produce it, and the men today who are most anxious to solve the beekeepers' problems are not the beekeepers themselves, but the men who are connected with the business as manufacturers and in the other capacities.

MR. KILDOW.—The middlemen.

PROFESOR PADDOCK.—No, I wouldn't call him the middleman, the bottler.

MR. KILDOW.—Did the league send representatives to all these different states, requesting them to come in?

PROFESSOR PADDOCK.—No, I don't think so. They didn't to our own. They had a representative in Wisconsin, but I think it was a

coincidence rather than cause and effect. Nebraska I know voted to join the league. I think every state association realizes that this is a step in advance, a logical step. We all have certain interests in common. We may have some little differences of opinion, but we can not progress as well as we could if we allow those little differences to act as a hindrance to progress. It came out in the Chicago-Northwestern meeting that the California exchange proposes to spend within the next six weeks, twenty thousand dollars in advertising in Chicago papers, advertising what they call the Chicago territory. Some of those fellows who have been producing two and five and ten cans of honey and taking it up to his grocery store will begin to get uneasy, but whenever a demand is created for honey, and California serves that demand once, they may not necessarily serve that demand the second time or the third, but whatever goes to boost in Chicago is going to boost the consumption of honey all over the United States, and Root's will tell you today that their advertising campaign which is costing them fifty thousand dollars is not bringing back fifty thousand dollars in money to them, but is is helping the beekeeping industry of the United States. It is creating a demand for honey all over the United States, that every one of us who are producing a pound of honey receive some benefit from their advertising.

THE PRESIDENT.—This is open for discussion. It is vital.

MR. TYLER.—Last year I produced in the neighborhood of six thousand pounds of honey. I was at Lincoln, where they have a wholesale grocery establishment. I went in there and asked them if they were in the market for some honey. He asked me how much I had. I told him. He asked me how much I was getting for it? I told him I was getting thirty cents a pound in five pound pails. He said, "I don't believe we can get together on the price." He said, "We are buying California alfalfa honey that we can sell to our trade for fifteen cents. At about the same time I met a wholesale man and in a little conversation I found out he was a honey producer, and he wanted to know what I was getting for honey. I told him. He said, "Do you know what I am getting for the the Airline honey in 14-ounce bottles?" Four and a half dollars a dozen in fourteen-ounce bottles. That is about thirty-seven and a half cents. At the same time that Airline honey was retailing for forty-five cents a bottle. Somebody was making big commissions. It wasn't hurting my trade. I couldn't dump my honey on a wholesale man because he could buy western honey cheaper; at the same time Airline selling at forty-five cents for fourteen ounces was helping me sell my honey at thirty cents a pound in a ten-pound pail, which was satisfactory to me. But there you have a line on about what the bottlers want to make or were making. Those people were wholesale grocers, they bought honey in sixty-pound cans and sold it that way. They were not bottlers, they were wholesalers.

MR. SMITH.—Evidently you concluded that the Airline company was making a big profit. I have talked to Mr. Root a good deal about that, and he says if you try to bottle honey and sell it direct to wholesalers, you can't do it. They sell it to the broker, jobber, wholesaler

and retailer, and they really make a modest profit, but there are about five people living off of it.

MR. TYLER.—I didn't have the price of everyone that handled it, but I am simply giving you a few prices in the different steps they were taking.

MR. SMITH.—I think the Airline honey is a great benefit to all of us. I used to bottle it for them and sold it, but you have to get a big price, for the retailer wants 33 1-3 per cent. The wholesaler wants 10 per cent, then your bottles and all that makes it expensive.

I have always had a hobby that if some company would sell sixty pound cans and buy from the producer and sell by parcel post, there would be a good thing in it. During the war someone said they would sell to their customers free of transportation charges, honey, so they got a carload of honey in sixty-pound cans. They let their subscribers know, and it went right out at thirty cents a pound. They ordered four or five cars, and it was all over-subscribed.

I believe we are making a mistake by selling people honey in small glasses. Sixty pounds is small enough. I have a lot of customers that take it in sixty-pound cans. A person can't supply a family of eight or ten with honey bottled in bottles, but if they knew where they could get sixty-pounds, they would buy it. The grocer's trade demands the small package. A little honey is all they carry, so they come to me and buy in five and ten gallons.

MR. KILDOW.—I think there is another thing that is wrong. I doubt whether we can ever educate the city people especially a big manufacturing town, to buy in large quantities. They live from hand to mouth. They get what they want for one meal. They want a five or ten-cent package, and till they get out of that habit of buying in piecemeal and not buying in larger quantities, we will never make much headway, because it is getting worse all the time—they buy from meal to meal. If it is raining so they can't get to the store, they have to go hungry.

MR. SMITH.—It has been proved there is another class that will buy it in sixty-pound cans.

MR. STONE.—The sixty-pound cans go mostly to the country people.

THE PRESIDENT.—We are wandering from this proposition. The question is before us: is it to our best interests to join the American Honey Producers' League?

MR. KILDOW.—As far as Illinois is concerned, I can't see where it would help us except in an indirect way a little. You couldn't go over the entire State of Illinois and get a carload of honey.

THE PRESIDENT.—I don't believe it is the idea of the league to try to collect honey in carload lots.

MR. TYLER.—I believe our producers of Illinois will be benefitted by joining the league.

THE PRESIDENT.—What do you say, Mr. Dadant?

MR. DADANT.—I figure we have got about three hundred and fifty members. Membership in the league, as I understand it, is one hundred dollars, that is thirty cents a member. We are not taking a very

big chance if we spend thirty cents. If it comes out all right, probably next year we will be ready to spend three hundred dollars.

THE PRESIDENT.—If we join now and pay the one hundred dollars there is nothing more to be paid until January 1, 1922.

MR. BISHOP.—I would be in favor of joining this league from my experience in the selling business. The State association in theory belong to the national association and get the national advertising, and I wouldn't have them stop that for ten dollars a year, just for the good it has done me. Probably some of you have noticed our national advertisement is just a smear of paint with a brush at the end. It says "Paint and varnish," and those few simple words are doing wonders for our business, and I can't see why, even though it costs us one dollar apiece for the advertising, I don't see why we should discontinue it. I think we should join the league, I think you would get it back ten-fold.

THE PRESIDENT.—Personally that is the way I feel about it.

MR. WITHROW.—If you never risk anything you never make anything. The only way I know of to find out is by trying. I, for one, would be in favor of trying this league.

THE PRESIDENT.—It has been moved and seconded that we join the American Honey Producers' League.

The question was voted on and unanimously carried.

MR. TYLER.—What about the payment of that one hundred dollars, will that come from the secretary?

THE PRESIDENT.—If there are one hundred men in the association that care to join, we will have to send out a letter to the members in regard to the matter. We can certify those one hundred men. If we do not some time during the next few months hear from them, we possibly can take the money out of the treasury. We will probably have it by that time. One hundred dollars can be taken care of very readily by the association. The entire membership at one dollar apiece we can't take care of. We will have to have the secretary send a letter out to each man, and if he cares to let him put in a dollar, we will let him do it. I think the real honey producers will do so. I think amateurs starting in the business will not feel it will do any good to join the league, and those men will always have to be taken care of in the association. We can't limit this association to men that produce honey and put it on the market. If we did we would fall down with our appropriation in the legislation.

One other question and then we are ready to join, and that is the question of admitting the Chicago-Northwestern for the ensuing year, at fifty cents apiece. Mr. Kildow has a little word to say about that.

Mr. KILDOW.—Mr. President, I don't know whether I ought to say anything about that. It didn't suit me, the remarks that the president up there made. I only want to say a few words about it. He likened this State association to a dog's tail, and said they didn't like to be wagged by the tail, and I didn't like it, in view of what they get from this State association. I for one pretty near voted against them coming in, because I hate to force anybody in, and that is the way they acted, like they would have to be forced in, because they claimed that they didn't get any benefit from this State organization. It was no benefit

for us to pay their stenographer and give them a report and let them in for fifty cents, because they were the dog, and wanted to wag us. You folks do as you please about that, I don't know whether I will vote at all or not. I didn't like that kind of expression from a society that is not anywhere the size of the State society. I think the State society should be the unit.

THE PRESIDENT.—As I understand it, they have sixty-one members belonging to our society here—last year, not now.

MR. STONE.—We have 285 members without them.

THE PRESIDENT.—We paid about $98 as I remember, for the stenographer, and then we publish their report and give them our report, for fifty cents per capita. I would like to have them still stay in the society; it makes members, and members are something when you go before the appropriations committee. If I could get the members of this society to go out and get just one member, and that man get another man, we would soon be up to one thousand. It is a very simple matter for me to ask for an appropriation of two dollars per capita, and there isn't a man on the appropriation committee that would say no. But when I go over and ask for five dollars per man, they think it is a little too much. So for that reason, I would still like to see the Northwestern come in. Of course, if they don't come in, that is still their pleasure.

MR. STONE.—They finally voted to come. The time was when they tried to get the State associations to have their meetings in Chicago. I wrote them we had to have the meeting in Springfield to elect the officers. They said elect the officers there. I referrd them to our charter, that the place of meeting of the State beekeepers association should be at Springfield, Sangamon County, Illinois, and we never had any more trouble from them, but they have always wanted to get hold of the fund that the Illinois State association gets.

MR. WITHROW.—I do not know just what per cent of the membership of the Chicago-Northwestern really live in the State, but I expect about fifty per cent of the members live in Indiana, Wisconsin and Michigan. It doesn't look right that we should pay out ninety-eight dollars for a stenographer and then only charge them fifty cents and give them a report, and charge our own members a dollar and a half.

THE PRESIDENT.—Practically half of the printing bill is due to the Northwestern. Of course, that makes a more readable report. It makes added papers to read. Only about one-fifth of the membership ever attends any of the meetings. They say, what is the use? We can read the report.

MR. STONE.—Mr. President, I would like to make a motion. I move that they be allowed to join our association the same as they have with a fee of fifty cents per capita, coming in in a body, provided that they will pay the reporter for reporting their association meeting. Leave it with them, then, whether they will join.

The motion was seconded.

MR. DADANT.—Before we go ahead with this we are liable to stir up some enmity within the State, and it is too bad to do that. I think the time is going to come when this State is going to follow the lead of

Wisconsin, and some of those who have affiliated with county associations. When that happens, the Chicago-Northwestern will be a really social gathering more than anything else, because Indiana members will belong to their state through their county, and Wisconsin will also. I hate to see this motion made to arouse any antagonism between them. I believe it would be better to let the matter drop entirely.

THE PRESIDENT.—I want the members of this association to understand the feeling that has existed. Personally I feel that it would be better to let these men come in.

MR. STONE.—Mr. President, with the consent of the second I will withdraw that motion from the simple fact they will say the State pays for their stenographer and they ask us to pay our own. So I withdraw that motion.

MR. KILDOW.—I think there were only about two people in that convention, that caused all that trouble. That was the president and secretary. The president made remarks and it seemed from what I could see that he did not want to join the State association, because he made the remark several times in this tone, that they would have to pay a dollar per member. I had to correct him. We never have charged them that. First they only paid twenty-five cents, and the last two years they paid fifty cents. They have no right to say we would charge them a dollar. Finally the membership voted that they would come in.

There is another thing. They voted to go into the league and pay one hundred dollars. They voted to come in with us and pay fifty cents. I think they had thirty-five members that paid in a dollar and a half, and they were wondering where they would get the money to come in. So they made a motion to pay out what money they had, and assess the members to get funds to go into the league and come in here.

MR. DADANT.—How many members have we outside the State, those that come in with the Northwestern, come in here and are furnished reports?

THE PRESIDENT.—There are about thirty of them outside the State, at a reasonable estimate.

MR. STONE.—There are some that come into our association outside the State, indirectly.

THE PRESIDENT.—Now, before I entertain a motion to adjourn, the first thing I want you to do is to get some more members for this association. The second thing I want you to do I want every one of you to see your legislator, the man in the House and the man in the Senate, I want you to tell him that we need an increased appropriation. We have asked for five hundred dollars more a year, the next thing I want you to speak to him about is the fact that we are trying to start a department of education in beedom at the State University. See that he is for that appropriation, and don't let him go until he says yes. It can be done, if you all work.

A motion to adjourn sine die will be in order.

It was moved, seconded and carried that the meeting adjourn sine die.

The meeting adjourned at 12:30.

PRELIMINARY NOTES ON THE VALUE OF WINTER PROTECTION FOR BEES.[1]

(By J. H. Merrill, Apiarist, Kansas State Agricultural College and Experiment Station.)

That a strong colony of bees will gather more honey than a weak one is a fact accepted by all experienced beekeepers. However, to gather more honey, this colony should be strong at the proper time in order to take the fullest advantage of the honey-flow. The proper time to have a colony strong is at the beginning of the honey-flow. If it becomes strong too early, it consumes stores which the bees have in the hive; if too late, it cannot assist in gathering the crop for that season. Whether or not the colony is strong will depend to a large extent upon how it passed through the winter.

Gates, 1914, gives some very valuable data on the temperature of the colony of bees throughout the year. Phillips and Demuth, 1914, give the results of some very careful observations on the temperature of a colony of bees in winter, and further explain in detail the actions of such a colony during the winter which are necessary in order to maintain a proper temperature. Phillips maintains that a bee may be compared to a storage battery in that it has a certain amount of energy to spend, after which it dies. He further says that the bee is obliged to resort to muscular activities in order to maintain the proper hive temperature. A system of winter protection which would minimize this expenditure of energy would result in a strong colony in the spring.

Phillips and Demuth, 1915 and 1918, give directions for preparing bees for the winter which will aid very materially in securing a strong colony of bees at the right time of the year. Although their explanations as to the need of winter protection for bees, and how to secure this should be satisfactory to all, there still remain a large number of people who either through mistaken observations of their own, prejudice, or on account of giving value to mistaken observations of others, will persist in refusing to accept even the clearest explanation if it does not happen to coincide with their preconceived opinions. This latter class of people are prone to maintain that these explanations may perhaps be facts, but they apply to some other part of the country than the one in which they reside. In order to convince them that these facts apply to their locality as well as to all other localities, and that these problems apply in every respect to them as much as to other beekeepers, it is often necessary to conduct additional experiments to prove further something which has been clearly explained before.

[1] This paper was not read at the convention, but the executive committee thought it worth printing.

It has been the purpose of this experiment to gather data along the following points:

First, the comparative value of one-story and two-story hives for wintering; second, the importance of a windbreak; third, the comparative value of packed and unpacked hives for wintering; fourth, the amount of stores needed to last a colony until the honey-flow commences; fifth, the effect of climatic conditions on wintering; sixth, to ascertain what form of winter protection will insure the strongest colony of bees at the beginning of the honey-flow.

In order to secure data on these points, experiments have been carried on at the Kansas State Agricultural College since 1917. In the experiment, two sets of hives are used. One set is placed in an open exposed situation where it receives no protection at all from the prevailing winds, and the other set is placed in a very dense hedge windbreak, so that the strength of the wind is very materially broken before it reaches the hives. In each set there are three colonies of bees corresponding in every way with each other. That is, there is one one-story hive, one two-story hive, and one packed hive in each set. The packed hive is in a single packing case, with four inches of leaves beneath it, six inches around it, and eight inches on top, used as an insulation. The entrances during the winter months are contracted to one three-eighths of an inch auger hole. Each one of these six hives rests on a platform scale, and is not removed from its position throughout the year. Daily readings are taken throughout the year of the weights of the various hives, and all changes in weight recorded each day. In order to determine the amount of honey that is in each hive, and the number of bees present, a general weighing of the colonies is made in the fall on the date that the bees are put into winter quarters. On the day that the honey-flow starts, another general weighing is made, to determine the number of bees which have passed through the winter and results of both the spring and the fall weighing are compared to secure the data desired. Briefly, the method of weighing is as follows:

Each colony is weighed early in the morning before any of the bees emerge. Next the weight of the hives without the frames is ascertained, and the weight of the frames with honey. From the weight of the frames of honey is deducted the weight of the empty frames, giving the amount of honey which is in the colony. We then know the weight of the hive, and also the combined weight of the hive and honey. This total, when subtracted from the weight of the hive, honey, and bees, gives the weight of the bees. Precautions are taken in recording these weights to prevent the bees from filling up with honey, thus making, according to the figures, a larger number of bees and smaller amount of honey than really exists in the hive. The process of weighing these colonies is rather complicated, usually requiring from three to four persons a whole day in order to weigh the six colonies in the experiment.

The number of bees in a pound has been variously estimated, but for the purpose of this experiment we assume that there are 5,000 bees in every pound. If this number is adhered to throughout the experiment, it will be as fair to one colony as to another. As stated above, the weight is recorded each day from each one of these hives through-

out the year. In addition to these, the record of the temperature, the direction of the wind, and the strength of the wind for each day is also recorded in order that we may have an opportunity to learn what effect climatic changes have on the wintering of the bees. These colonies are brought as nearly as possible up to the same strength in bees and honey. The queens used in them are all from the same stock, purchased from a reliable queen breeder, and introduced into the colonies on the same day. Each colony is requeened during the month of August in order to insure a young queen to carry on the duty of the hive. The weighing which is conducted in the spring shows whether or not there has been an increase in the number of bees during the winter. It is considered that the form of wintering which produces the largest number of bees in the hive on the day that the honey-flow starts is the most successful method of wintering.

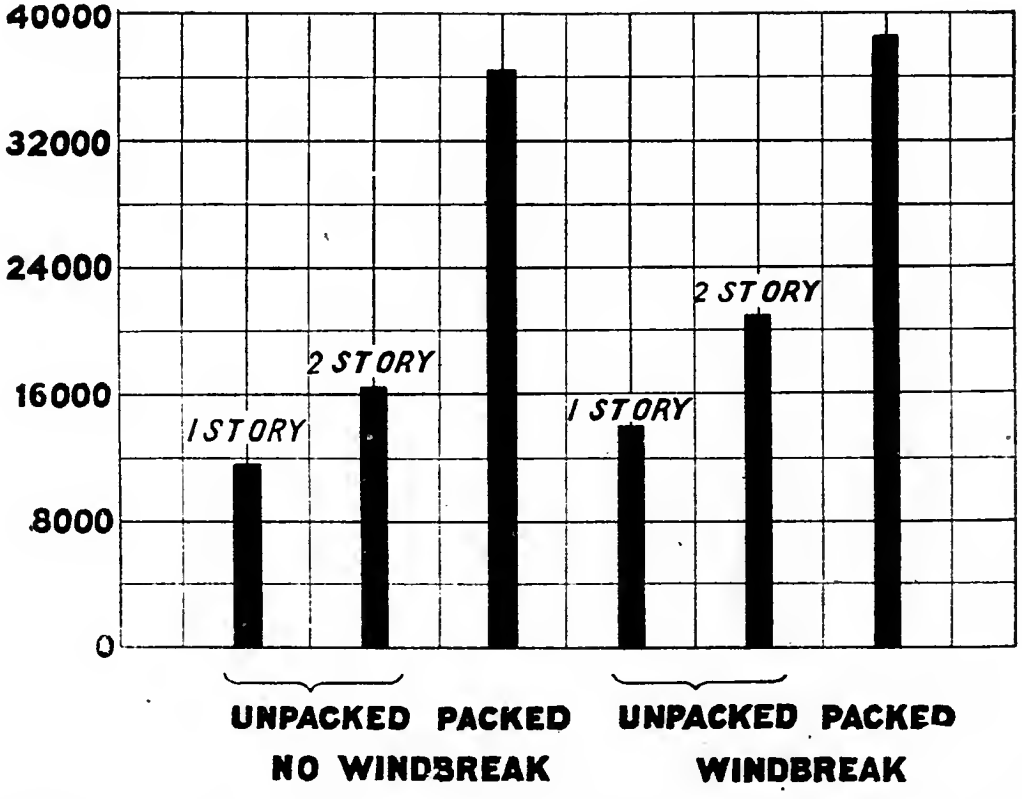


Fig. 1. Showing the number of bees at the beginning of the honey-flow, the advantage of packed over unpacked hives, and the value of sheltering with a windbreak.

TABLE I. NUMBER OF BEES AND FRAMES OF BROOD IN EACH COLONY MAY 4, 1919

Unsheltered—No Windbreak

One-story	Two-story	Packed
11,718—3 2/3 frames	16,406—3 1/2 frames	36,718—4 1/2 frames

Sheltered—Windbreak

One-story	Two-story	Packed
14,063—4 1/2 frames	20,936—3 3/4 frames	38,594—5 3/4 frames

Comparative Value of One-Story and Two-Story Hives.

At first glance it would seem that bees would winter better in a one-story hive than they would in a two-story hive, since there is less space to keep warm, and consequently, they would not use as much energy as they would in a two-story hive. If the winter stores are properly arranged so that the bees will be in the upper hive body during the coldest part of the winter, the objection of extra room to be kept warm is largely overcome. Two of the requirements for good wintering, according to Phillips and Demuth, 1915, are, first, plenty of stores, and second, plenty of room for brood rearing. A two-story hive suits these conditions much better than a one-story hive would do.

Table I shows that in the spring the two-story hive in the open had 16,406 bees, while the one-story hive had only 11,718, or a difference of 5,688 bees. In the windbreak, the two-story hive had 20,936 bees and the one-story hive had 14,063, or a difference of 6,873 bees. This shows not only the superiority of the two-story hive over the one-story, but also shows that the windbreak made a difference of 1,185 bees.

Table II. Comparison Between Number of Bees in Fall and Spring Weighings

	1917–18	1918–19
No Windbreak		
One-story	–332	–3,282
Two-story	2,808	–469
Packed	4,576	22,968
Windbreak		
One-story	4,538	313
Two-story	13,346	5,936
Packed	15,132	24,844

In 1917, the average daily consumption of honey for the six hives, over a period of 139 days, was one-eighth of a pound.

In 1918, the average daily consumption of honey for the six hives, over a period of 150 days, was one-eighth of a pound.

Table II shows that in the winter of 1917-18, while the one-story hive in the open lost 332 bees during the winter, the two-story hive similarly placed gained 2,208 bees. With those bees protected by the windbreak the two-story hive gained 13,346, while the one-story hive gained only 4,538. During the winter of 1918-19 the one-story hive in the open lost 3,282 bees, while the two-story hive only lost 469. In the windbreak the two-story hive gained 5,939, while the one-story hive gained only 313.

If the number of bees at the beginning of the honey-flow be a proper standard, these results plainly indicate the superiority of the two-story hive. The same factors which make this possible ought to make the deeper and larger hives superior even to the two-story hive, since the latter will have plenty of room for stores and ample room for spring brood rearing without too large a space for the bees to keep warm.

Comparative Value of a Windbreak.

A study of Table I would indicate the value of a windbreak, especially to colonies which are not otherwise protected. In the case of the

one-story hive, there were 2,345 more bees in the hive protected by a windbreak than in the unprotected one-story hive. The protected two-story hive had 4,530 more bees than the unprotected two-story hive. While the protected packed hive only had 1,776 more bees than the unprotected packed hive, thus indicating that although a windbreak is very valuable, yet if it is not possible to provide one the loss may be partially overcome by using sufficient packing. The figures shown in Table II

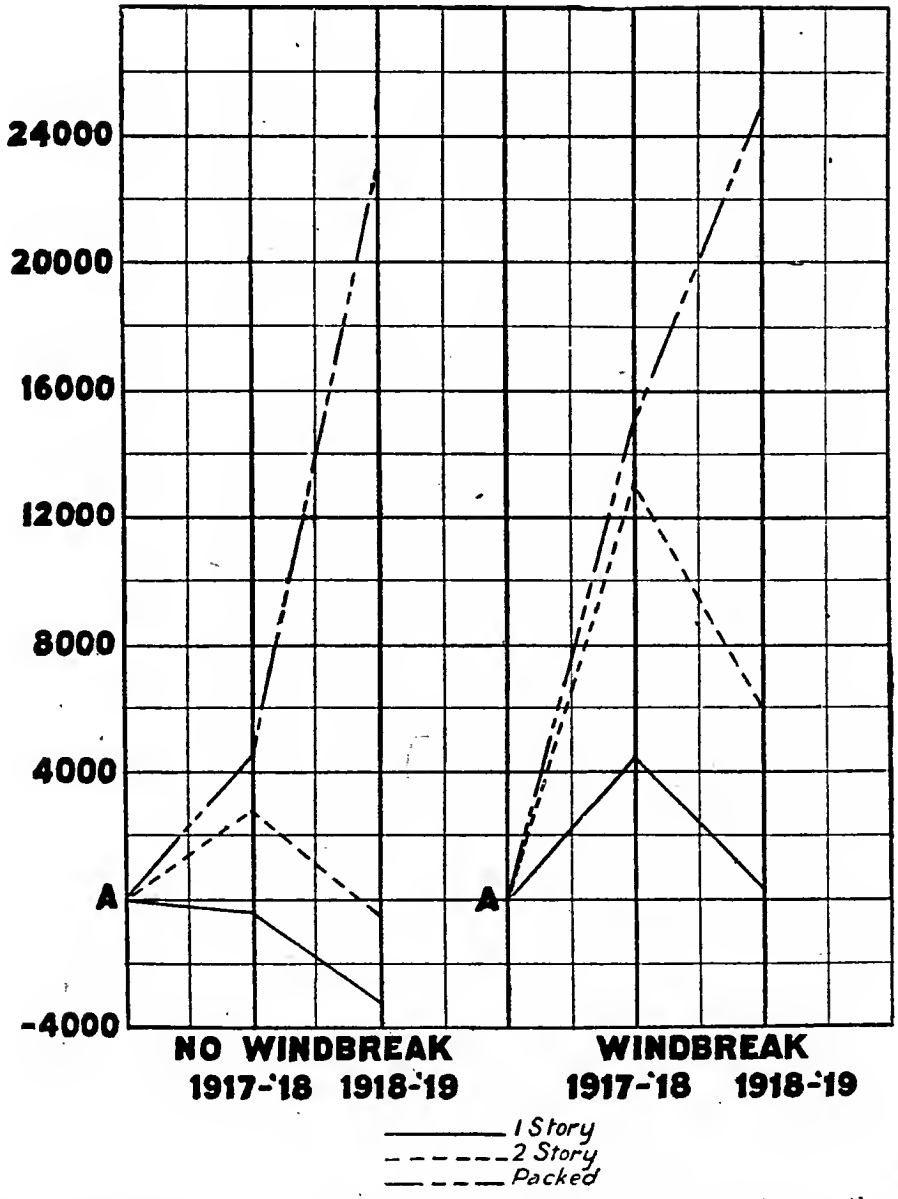


Fig. 2. Showing the gain or loss in the number of bees between the fall and spring weighings, demonstrating the value of both packing and windbreak.

also indicate very clearly the value of a windbreak. In 1917-18 the one-story hive lost 332 bees during the winter, while the one-story hive in the sheltered position gained 4,538. During the next winter, the same hives respectively lost 3,282 and gained 313. The two-story hive shows the value of a windbreak more clearly even than the one-story, because while the two-story unsheltered hive gained 2,808 in 1917-18,

the sheltered hive gained 13,346. In 1918-19 the first hive lost 469 while the second gained 5,936. Judged by the standard already adopted, the windbreak is shown to be very valuable as a factor of winter protection.

Comparative Value of Packed and Unpacked Hives for Winter.

During the winter of 1917-18, the packed hives were insulated with shavings and excelsior for packing material, but it was not as good as the forest-tree leaves which were used in 1918-19, and which will be used in the future.

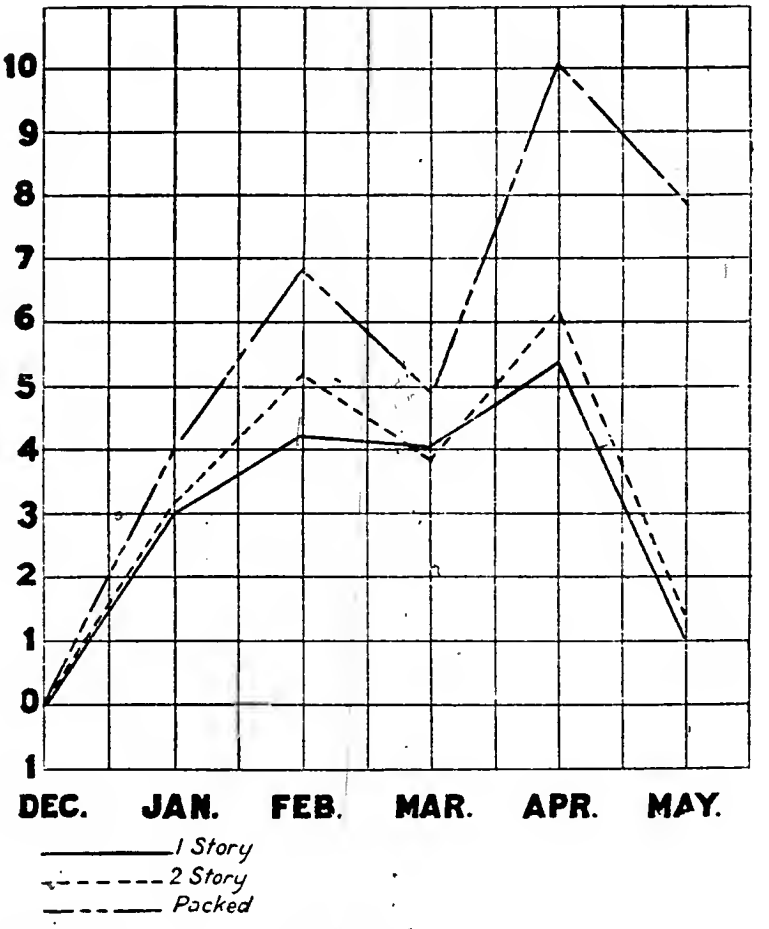


Fig. 3. A comparison of the amount of stores consumed each month by colonies in packed hives and the amount consumed by colonies in unpacked hives.

Table I shows that the packed hive had 25,00 more bees than the one-story unpacked hive. This represents about five pounds of bees, which, at their present market value of around $2 a pound, would mean about $10. The difference between the number of bees in a packed hive and in an unpacked one in the sheltered set of hives was practically the same as in the open.

Table II, which gives the results for 1918-19, shows that the winter of 1918-19 was harder on the bees than was the preceding winter, and yet this is the winter in which packed bees wintered the best. In fact, there is more difference in this unfavorable winter between the packed

and unpacked hives than in the more favorable one. This is shown by the fact that while the one-story hive in the open lost 3,282 bees, and the two-story hive 469, the packed hive gained 22,968. In the sheltered hives the one-story hive gained 313 bees, the two-story hive gained 593, but the packed hive gained 24,844. When judged by the standard of the number of bees in the hive, packing appears to be the most valuable factor of wintering, excepting, of course, sufficient stores.

The Amount of Stores Necessary to Last a Colony Until the Beginning of the Honey-Flow.

The amount of stores necessary to last a colony until the honey-flow begins will depend largely upon the size of the colony, size of the hive, and upon the amount of protection which it has.

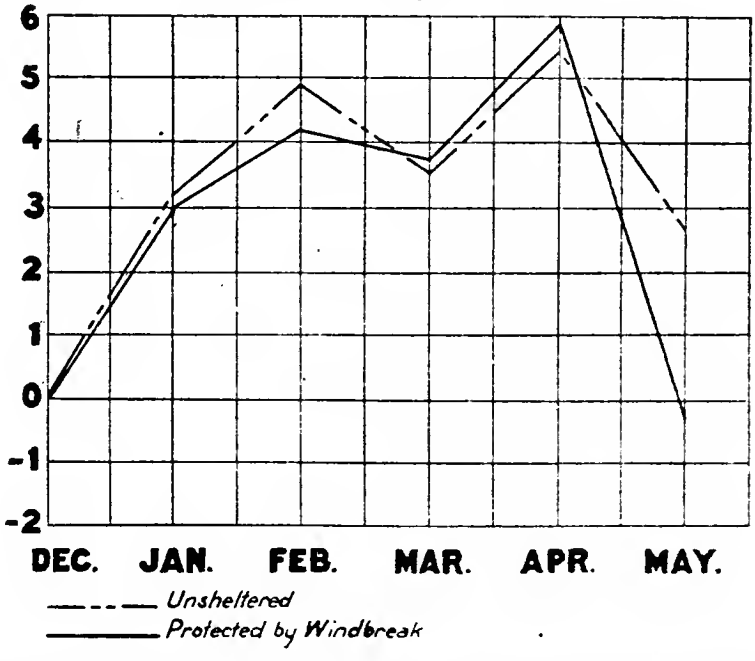


Fig. 4. A comparison of the number of pounds of stores consumed by colonies that are not sheltered with the amount consumed by colonies that are sheltered by a windbreak.

Figure III represents, graphically, the amount of stores consumed by the bees in each kind of hive throughout the winter. As will be seen in an examination of this figure, the colonies in the one-story hive consumed less stores than any of the others, while the colonies in the packed hives consumed the most. This difference is especially noticeable during the month of March at which time the stores were being used for brood rearing. A comparison between Figure I and Figure III will show a direct relation between the amount of stores consumed and the number of bees present in each colony at the beginning of the honey-flow.

Figure IV represents a comparison of the amount of honey consumed by colonies wintered in the open, and those sheltered by a windbreak. The sheltered colonies consumed less during December, January, and February, but during March they used more than the unpro-

tected colonies. During April they used less stores, or rather did not lose as much in weight, owing to the fact that brood rearing had continued for some time, and since it was greater in the sheltered colonies, the presence of the new bees, and what honey could be gathered at that time account for the fact that they gained weight during that month. A study of this figure will show that during the months of December, January, and February, when stores were being consumed only to maintain the life of the bees that were already in the hive, those which were in sheltered positions did not consume as much honey as those in the open. However, during the month of March they consumed so much more honey than did the other colonies that the total amount consumed was about equal in both cases, the difference being that the colonies in the sheltered positions consumed their greater amount of stores for the purpose of brood raising. Had weights been taken only at the beginning and end of these periods, the fact that the unsheltered hives consumed more at one time than the sheltered, and less at another, would not have been noticed.

TABLE III. MONTHLY CHANGE IN WEIGHTS

In the upper column for each month are placed those colonies protected by a windbreak and in the lower those not protected. Unless otherwise stated, the figures given represent a loss in pounds of weight.

One-story	*Two-story*	*Packed hive*
	December, 1918, to January, 1919	
2 6/8	3 2/8	3 4/8
3 2/8	3	4 2/8
	January, 1919, to February, 1919	
3 5/8	5 1/8	5 4/8
4 6/8	5 2/8	8 1/8
	February, 1919, to March, 1919	
4 1/8	3 4/8	5 4/8
3 7/8	3 3/8	4 3/8
	March, 1919, to April, 1919	
6 2/8	5 5/8	10 7/8
4 3/8	6 5/8	9 2/8
	April, 1919, to May, 1919	
4/8 gain	1/8 gain	4 1/8
2 5/8	2 5/8	11 5/8
	Total for 151 days	
16 2/8	17 3/8	24 4/8
18 7/8	20 7/8	37 5/8
	Average Daily Consumption	
1.6 oz.	1.8 oz.	2.6 oz.
2. oz.	2.2 oz.	3.9 oz.

Table III shows that the total amount of stores consumed for a period of 151 days was less for the one-story hive in the open, being 16 2/8 pounds, and greatest for the packed hive in the sheltered position. Reference to Figure I will show that the number of bees in the spring is proportional to the amount of stores consumed. The one-story unpacked hive lost 3,282 between fall and spring, while the packed hive gained 24,844. The difference between the sheltered and unsheltered colonis, as regards daily consumption, was 4/10 of an ounce for the one-story hives, 4/10 of an ounce for the two-story hives, and 1 3/10 ounces

for the packed hives. It has been shown that less honey will be required to winter bees in a one-story hive than in either the two-story or packed hive; that less will be required in a two-story hive than in the packed hive, and in each case less stores will be consumed where the bees are not protected by a windbreak than would be the case if they are protected, but the number of bees in the colony at the beginning of the honey-flow is directly proportionate to the amount of stores consumed by that colony during the winter.

The Effect of Climatic Conditions on Wintering.

One of the arguments most commonly made against using winter protection is that the bees in some particular locality may not need any winter protection because that locality has such open winters.

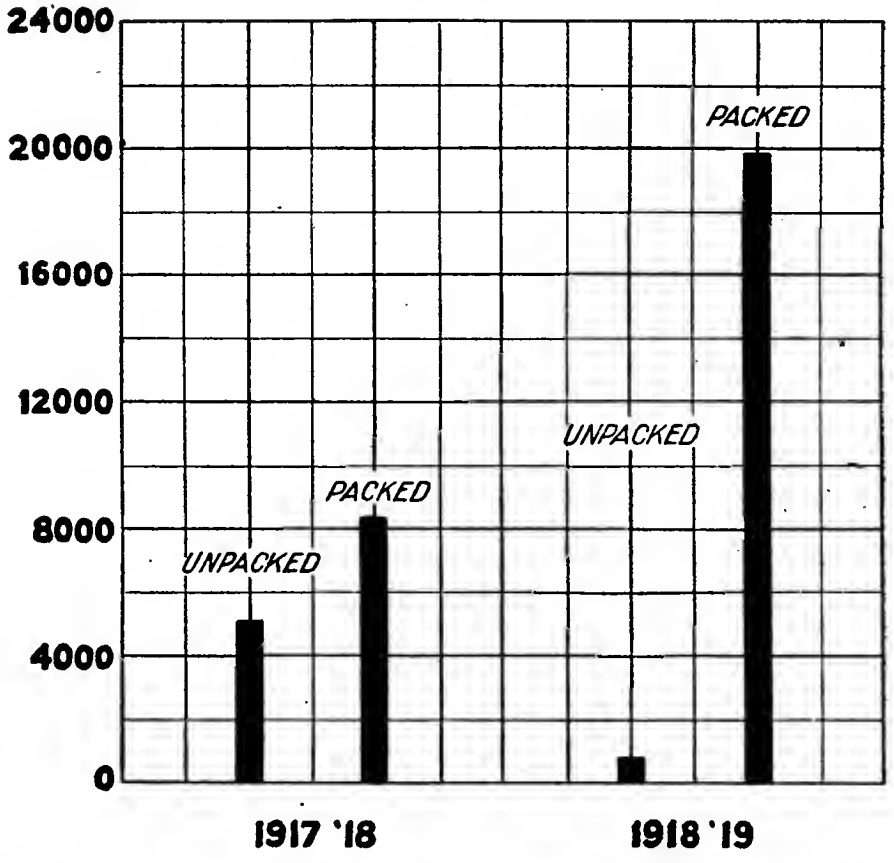


Fig. 5. Shows the average gain in number of bees in packed and unpacked hives during a severe winter with long periods of cold weather and the gain or loss in the same colonies during an open winter with shorter periods of cold weather.

Figure V represents, graphically, the effects of both a severe winter and an open winter upon the number of bees to be found in the colony in the spring. In the winter of 1917-18, which was very severe, bees were confined to their hives for long periods at a time, while the winter of 1918-19 was an open winter with no long periods of cold weather.

Figure V plainly shows which winter was the more favorable for the successful wintering of bees. During the severe winter of 1917-18, the

one-story hive in the open lost 332, while during the open winter of 1918-19 the same hive lost 3,282. During the severe winter, the two-story unprotected colony gained 2,808, while during the open winter this same colony lost 469. During the severe winter, the one-story colony, protected by a windbreak, gained 4,538, while in the open winter the same colony gained only 313. The two-story hive, protected by a windbreak, gained 13,346 bees during the severe winter, but only 5,936 during the open winter. However, the effect of climatic conditions is much more noticeable on the unpacked colonies than on the packed ones. The insulation which is placed around the hives protects the bees from any sudden changes of weather. If the warm sun beats upon unpacked colonies it soon causes a considerable rise in temperature within the hive. However, with a well insulated colony this would not be the case. Although the unpacked hives did not do as well during the open winter as they did during the severe winter, yet the packed hives did even better, owing to the fact, as explained before, that they were packed with leaves, which is a better insulating material than that which was used the previous winter. While one colony in the open was losing 3,282 bees, the packed hive in the open during this open winter gained 22,968, but in the windbreak, while the one-story unpacked hive gained 313, the packed hive gained 24,844.

The figure above, and the data which accompany it, plainly indicates that a severe winter, with long periods of cold weather, is really much more favorable than is the open winter with shorter periods of cold weather.

Form of Winter Protection Which Will Insure the Strongest Colony of Bees at the Beginning of the Honey-Flow.

Reference to the figures given above would show that the two-story hive has advantages over the one-story hive, and also that probably for the same reason a large hive would be equally as good, if not better, than the two-story hive, and also that a well packed colony is greatly to be desired over an unpacked colony. The difference in the number of bees in the unpacked and packed hives is sufficiently great to more than repay the expense which a beekeeper may be put to in providing sufficient packing. In order to know the amount of stores to leave in the hive, the beekeeper must take into consideration the type of hive he is going to use. If it is a one-story to be used with no packing, he should leave at least 20 pounds of stores, as this would usually carry the bees through until the beginning of the honey-flow. However, 25 pounds would be a safer amount. If he is going to winter his bees in a two-story unprotected hive, then he had better leave 25 to 30 pounds, preferably 30 pounds. If, however, he is going to pack them he should leave enough stores to last well into the spring, as he will not need to molest them during the early spring. For this reason he should leave 40 to 50 pounds. While ordinarily they would pass the winter well on 40 pounds, it would be better to have the 50 pounds in there for safety.

The value of a windbreak has been clearly shown, and as explained by Phillips and Demuth, this should consist of a broken windbreak,

such as a hedge, or if a fence must be used, it should be so constructed that there will be large cracks between the boards. To sum up the whole thing: a packed hive sheltered from the wind by a good windbreak, having 45 or 50 pounds of stores, has the best chance of passing the winter successfully, and will probably contain the largest number of bees in the spring at the beginning of the honey-flow ready to take advantage of the same.

Summary.

First. Directions have been given in previous publications as to the method for giving bees winter protection. The purpose of this work is to secure data showing the necessity of using this winter protection.

Second. Six hives containing a known amount of honey and a known number of bees were placed on scales, and daily readings taken of all changes in weight.

Third. Three of these hives were sheltered by a windbreak while the others were not.

Fourth. Each set of three consisted of one one-story hive, one two-story hive, and one packed hive.

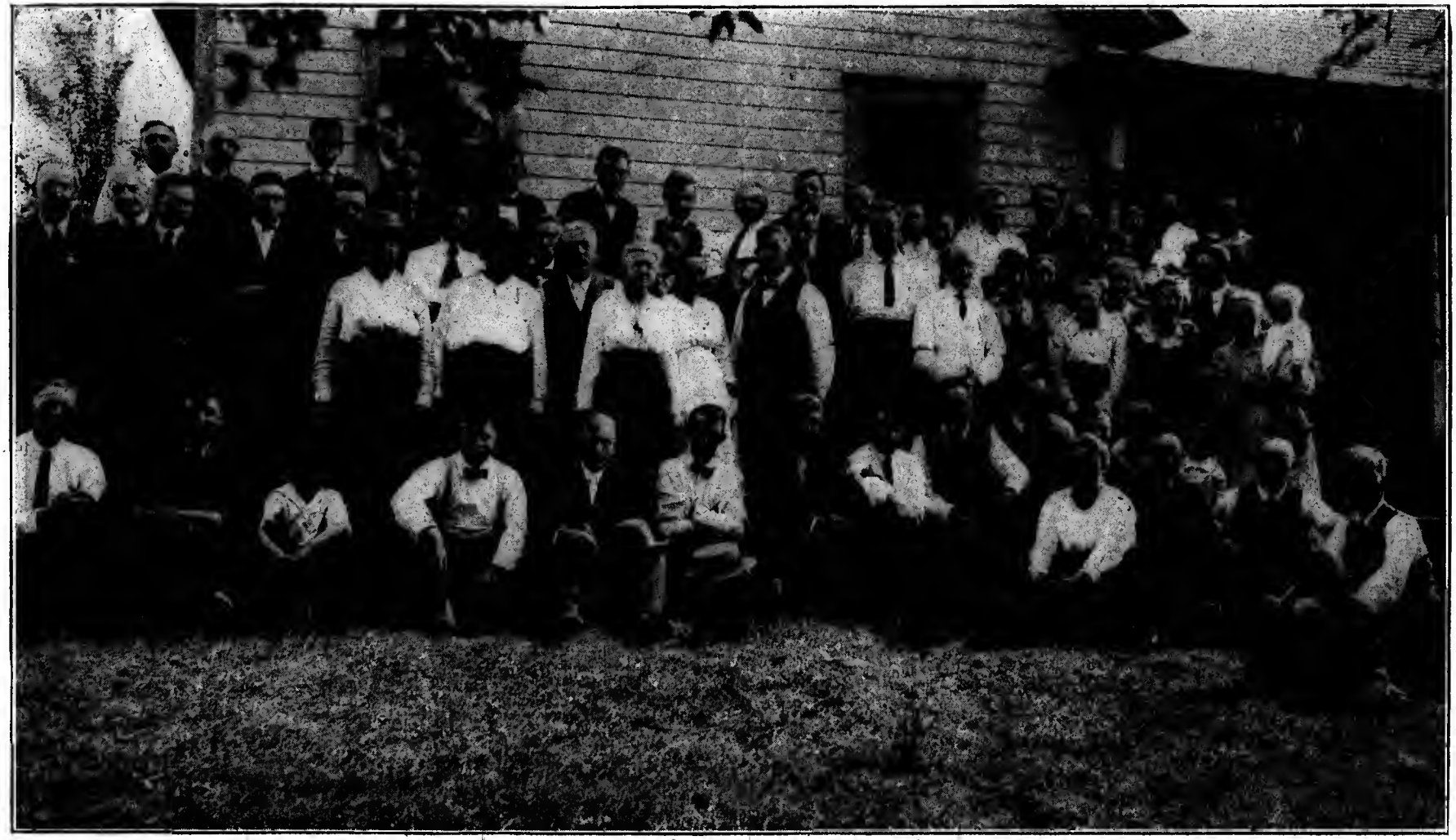
Fifth. In addition to making daily readings of the changes in weights, a general weighing was made at the beginning of the honey-flow in the spring to determine the number of bees in the colonies on that date.

Sixth. These observations show that the two-story hive is preferable to the one-story hive, and the packed hive is much to be preferred over the unpacked hive.

Seventh. It was also shown that a windbreak is very essential, especially to colonies which have no other form of winter protection.

Eighth. The effect of a severe winter was found to be less injurious to the over-wintering of bees than an open winter.

Ninth. Colonies which are packed for the winter consume more stores, owing to the fact that more stores are necessary, due to increased brood rearing.



Field Meeting at A. L. Kildow, Putnam, Ill., Sept. 10, 1920.

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PROCEEDINGS

of the

Twenty-fourth Annual Convention

of

Chicago-Northwestern Beekeepers' Association

held at

Chicago, Ill., in the Rose Room, of the Great Northern Hotel

December 6 and 7, 1920

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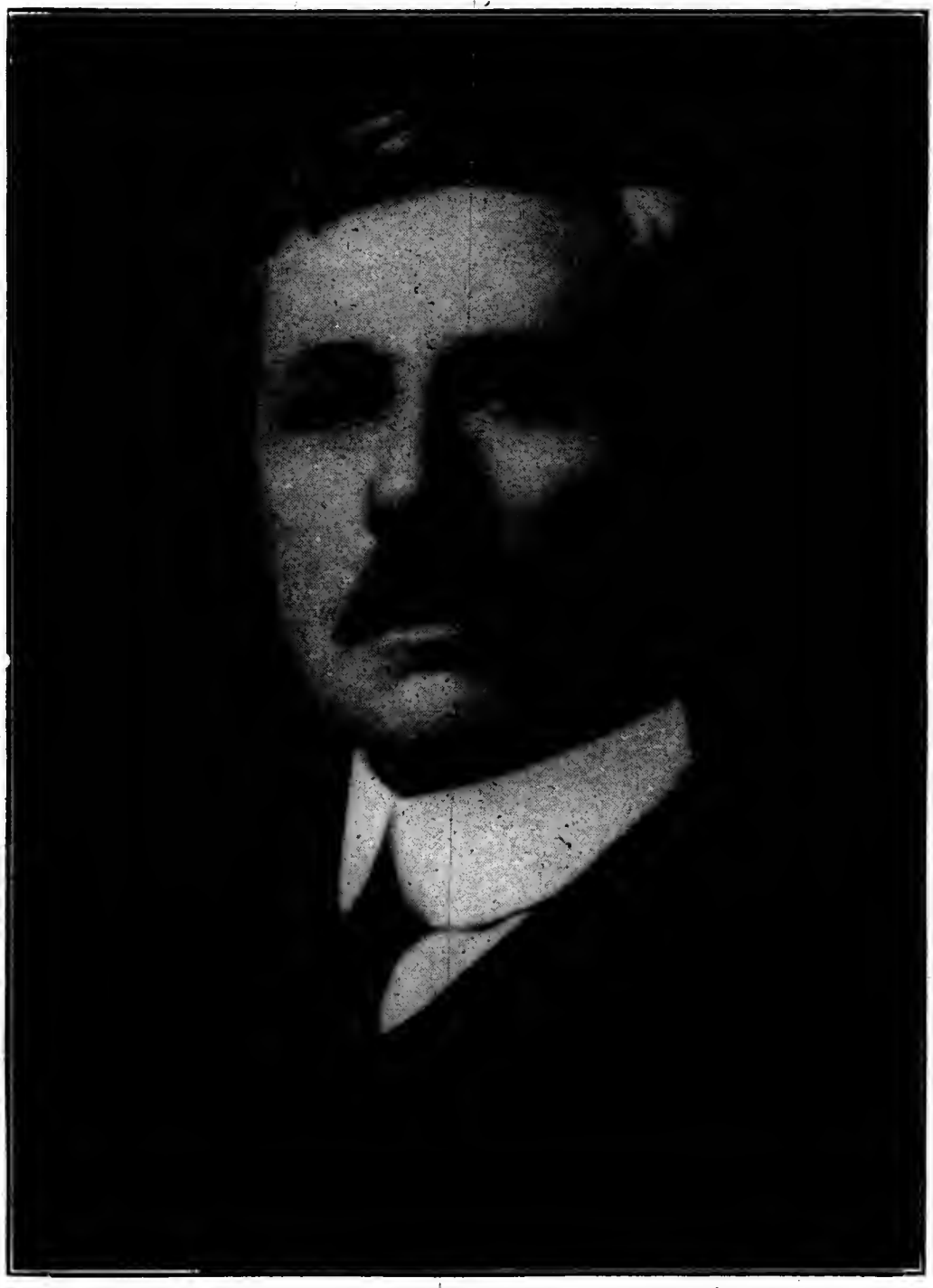


E. S. MILLER,

President, Chicago-Northwestern Beekeepers' Association.

PROCEEDINGS OF THE CHICAGO-NORTHWESTERN BEEKEEPERS' ASSOCIATION.

President, E. S. Miller, Valparaiso, Indiana.
Vice President, C. O. Smith, 5446 Cornell Avenue, Chicago, Illinois.
Secretary-Treasurer, John C. Bull, Valparaiso, Indiana.

FIRST SESSION.

MONDAY MORNING, *December 6.*

Meeting called to order by the president.

THE PRESIDENT.—We will have first the reading of the minutes of the last annual meeting.

THE PRESIDENT.—You have heard the reading of the minutes. Are there any corrections? If not they will stand approved as read. Next is the report of the secretary-treasurer.

Cash on hand December 15, 1919	$ 49.93
Receipts since December 15, 1919	109.50
Total	$159.43
Total expenses	120.95
Balance on hand December 6, 1920	$38.48

THE PRESIDENT.—You have heard the report of the secretary-treasurer. Are there any suggestions or amendments?

MR. STEWART.—I move the report be accepted as read.

MR. SMITH.—Second the motion.

THE PRESIDENT.—It is moved and seconded that the report be accepted as read.

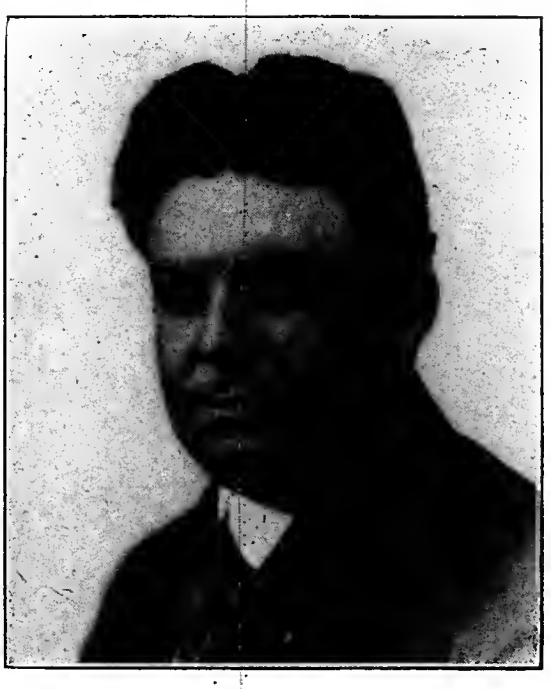
The motion was unanimously carried.

THE PRESIDENT.—We will have the report of the standing committees. We have a committee on legal affairs. Mr. C. O. Smith is chairman of that committee.

MR. SMITH.—There is not very much to add to the report made last year at the close of the session. We have done a little work. In fact, we rather felt that it was the intention of the meeting to discharge the committee when they accepted the report, but the committee when they accepted the report, but the committee was not discharged officially, so I suppose a report is in order, of what has been done, although what has been done has been done, really, not by the committee acting as a committee but because we haven't had a meeting. I didn't have the addresses of the other members of the committee and didn't call them

during the year, but I have done a little work, because I felt there is one line along which we can acomplish something for the beekeepers of the north.

I do not want to make any general accusation against the shippers of bees from the south, but I do think there are too many men in the south taking advantage of the demand for package bees up north, to swindle them. There are men in the south who advertise to ship bees, without any intention of keeping their agreement, and I think there is quite a number of them, so that I feel that a prosecution ought to go forward against probably one of the most prominent men down there, and in my week way I have attempted to prepare matters for a prosecution.



JOHN C. BULL,

Secretary, Chicago-Northwestern Beekeepers' Association.

I have got a good deal of evidence. The postal inspector in Chicago told me he thought I had enough evidence. He is not in this district, and the prosecution will have to be made in the southern district. I have taken it up with the postal inspector in that district and he referred the papers to Washington. I got a request from them to furnish certain evidence, and I found that I had been somewhat careless and didn't have all the evidence needed, although I placed what evidence I had before the inspector in Chicago and I thought I had enough.

In this particular case the man advertised to send bees by parcel post or express. He is a prominent beekeeper and advertises in all the bee journals. His dealings with the bee journals had been satisfactory, for they gave me good letters of recommendation when I inquired about him, but I feel I was entitled to the same treatment that I would get

from any other reliable advertisement of a business man. I looked over his advertisement in the bee journals and selected him for three reasons: one was he lived on a line of transportation that came direct to Chicago; another was he guaranteed safe delivery by parcel post if you would pay the postage in advance. I live close to the postoffice where the bees would be delivered to me within an hour or two after they arrived by parcel post, so they wouldn't be on the way very long.

In his advertisement he said he would make a reduction if you had the bees sent by express. I wrote him in February and got a prompt reply that he would ship the bees on April 29th. I sent him a larger deposit than he required. The fore part of April I sent him all his money to pay for the entire lot of bees. I didn't hear anything further from him till in May. He didn't even acknowledge receipt of the money in May. As it had gotten too late to get the bees, I wrote him to cancel the order, if he had received the money, but that he probably hadn't received it because I had heard nothing from him. Within a few days I got a reply to the letter sending him the money. It said, "I received your money and unless I get further orders I will ship the bees next week." I knew he had received my letter canceling the order, and that he didn't intend to cancel it, but that he intended to keep my money because about twenty minutes after I got his letter acknowledging receipt of the money, some of the bees came. They came by parcel post, in fair condition. I accepted them. A few days later some came by express, in very bad condition, and fifteen or twenty days later some more came by express, and they hadn't paid the express charges. Most of them were dead, or a great many of them were, and I din't consider them worth the amount of money that the express company was asking as express charges, so then I didn't want the bees.

I wrote him to refund my money for the bees that I refused in bad condition. I told him I had received black queens when he advertised pure gold ones. I paid him an excess price because I thought I was getting good goods from a square dealer. He paid no attention to my correspondence. I have taken the matter up with the bee journals. I presume they wrote him at different times, and finally took the matter up with the postal inspector. Then I got a check for part of the money, with a receipt on the face of it, "Settled account in full." I took the check and went to the postal authorities, and asked them if it would make any difference in prosecuting whether I accepted that part payment in full for the account or not. The inspector said so far as the effect on the prosecution is concerned, it would make no difference. You can prosecute him for defrauding you through the mail just as well if you make a full settlement as you can before, but you can't collect any more money from him. I said I am lucky to get part of it, so I cashed the check and am preparing to prosecute him for defrauding through the mails.

There is a good deal said in the bee journals excusing shippers from the south, who ship bees, and I have no doubt those men have their troubles the same as any other man has his troubles, but ordinarily a business man if he has troubles expects to stand the loss himself, if he is honest. He doesn't expect to shoulder it on somebody else.

I inquired at the office of the Root Company in Chicago and found that there has been a number of complaints about this same shipper. Since my controversy with him he has not advertised to my knowledge in any of the bee journals, but I have learned from other sources that the demand he has for bees is more than he can supply, and he claims to be one of the biggest shippers in the United States.

A man who will advertise packages of bees to be shipped in April and doesn't deliver them until the first of June is in the same class with the man that would sell you seed corn to be delivered in April and doesn't send it till in June. A man buying one or two pound packages of bees buys them for seed, not to get a crop of honey that year. If that man keeps the queens and lets them lay in the heavy laying season thirty or forty days, he is robbing his customer, besides sending them when the weather is hot, which is liable to cause them to die. He is upsetting your plans. My time in June was worth more to take care of them than the bees would have been worth if they had come. I lost the time I had set apart to take care of them when I agreed to handle them.

I want to treat fairly with my fellow man, and I want to be treated fairly. In fact, I nearly always insist on being treated fairly, just as I would treat him. If this man shouldn't be prosecuted, and there is anyone here who thinks he should not be, I wish you would say so, and if any of you know of a southern beekeeper who should be prosecuted, notify this committee and well try to make a case for them, because I am satisfied that is the only thing that will stop this thing. The bee journals are doing all they can, but a man can be fair with a bee journal and absolutely dishonest with his customer, and there isn't one man in a thousand that loses forty or fifty dollars by some man taking it away from him, that will waste one or two hundred dollars in prosecuting him. He will charge it off and let it go. This association, if it does anything, should do things for the benefit of its members, and that is the theory on which I am working.

We secured the services of an attorney for our association. You will find his name and address on the literature. We obtained his services on the terms I outlined here last year, on the terms I believed we could get an attorney. If any of you need his services individually it would be necessary for you to engage him, but his services for the association cost you nothing. I have known the man for a great many years, know he is a good, straight-forward honest attorney, and he has agreed to serve us under those terms. I thank you.

THE PRESIDENT.—You have heard the report of the committee. What shall be done with it.

MR. HAAN.—I move the report be received and placed on file.

MR. COPPIN.—Second the motion.

THE PRESIDENT.—You have heard the motion and the second. Is there any discussion? All in favor of receiving and placing this motion on file signify it by saying aye. Contrary no.

MR. STEWART. No.

THE PRESIDENT.—I think there were two votes in favor and one against. Those in favor of receiving the report please rise; those opposed the motion is carried.

The next on the program is the paper by Mr. C. P. Dadant. Who, I understand, has been unable to attend. His son, L. C. Dadant, is at present attending another meeting in this building.

The American Honey Producers meeting is in session at the present time. Representatives of asscoiations all over the United States are here, holding a conference regarding ways and means, and outlining the work that is to be done in the future. That meeting is now being held in the east room immediately below us.

Next is the price committee report. Mr. Bull is chairman of that committee. We will have that report.

THE SECRETARY.—We sent out letters last summer, the same as we have been doing for the last three years. We sent out one letter, I think it was about the 26th of August, recommending prices, and that is the only letter we have sent out this year. I sent out about 950 of them.

THE PRESIDENT.—Are there any suggestions in regard to this price committee, the effect of reports being made, whether it has any substantial effect on prices of honey, whether it does any good or any harm? Has anyone any suggestions along that line, or any discussion?

MR. J. A. MACNEILL.—I think it is a valuable thing for the association to have this letter. It has been of help to me. In the first one or two it seemed to me that the price was placed a little higher than it should have been, but it was my mistake and not the mistake of the committee. This last time there was a slight reduction in price from what it had been, or was it the same?

THE SECRETARY.—It was the same.

MR. J. A. MACNEILL.—I have been selling a little higher than the price given in the letter, but I reduced it and I believe it is about right.

I ran across a fellw on the street the other day, who was selling ten pounds for four dollars and a half, and charging two twenty-five for a five-pound pail. That looks entirely unreasonable in view of the wholesale price of money. But if he can get it, all right. But the price as given by the committee in this letter has always been fairly well in agreement with the wholesale price, and I am beginning to have a great deal more confidence in the price fixed by this committee.

MR. STEWART.—Doesn't every man make his own prices without regard to anything you send out? It is a matter of business with him.

THE PRESIDENT.—Sometimes it helps us in doing that, if we have somebody to look the field over and study the conditions. Sometimes it helps us in determining what we shall ask for it. I might be at a loss to know all the conditions prevailing in the different parts of the country, and if somebody can make a study of this and help us out with the information, we are able to use it. We are not compelled to accept those prices, but sometimes the advice is helpful. Are there any other committees to report before we proceed with the rest of the program?

MR. COPPIN.—I was of the opinion that the letter sent out had a tendency to raise the price instead of lowering it, as soon as they know about it. I know prices were always quoted a little higher around in my neighborhood, and it had a tendency to make mine jump up, as well as others, so in my estimation it would probably benefit me a little, and in other localities it would benefit the buyer.

THE PRESIDENT.—We know that conditions have been such all over the country that one man would sell honey for ten cents and another for thirty or forty cents. We will now hear from Mr. Dadant on "The Drone."

MR. DADANT.—This paper was to have been given by my father, Mr. C. P. Dadant, and on account of his being unable to be here I brought his paper to read.

THE DRONE.

(By C. P. Dadant, Editor of the American Bee Journal.)

I have not selected this subject for the purpose of either praising or condemning the drone, but only to give the facts concerning this member of the bee family and to determine from these facts what must be our attitude towards him.

Drones are the largest inhabitants of the bee hive. The cells in which they hatch number about 18 to the square inch, or 36 when we figure both sides of the comb; while the cells in which the workers are reared number a trifle over 27 in the same area, or 55 for the two sides of the comb. This, for a square foot of comb, gives us 5,184 drone cells or, for a square foot of worker comb 7,920 worker cells. These are approximate figures. But we can safely estimate that the space of comb that will accommodate five drones will be about sufficient for 8 workers. We should keep these figures in mind, for they have great importance in the management of the apiary.

The drone is by far stronger than the worker. His wings are comparatively larger, so that he makes a much greater hum in flight. His eyes are much more numerous, the compound eyes almost joining together at the top of his head and containing, according to Cheshire, over 12,000 facets each, while the eyes of the worker number but little over half as many. He is more vigorous in every way. If we try to kill bees with brimstone, which happened to me two or three times, to get rid of vicious Cyprians, we find that an amount of sulphur smoke or gas, which will kill the workers of the hive, may leave the drones alive.

Cheshire, who investigated and described the drone's organs, explains that the greater power of flight and vision, of the drone, is necessary for the purpose of mating.

It is well known that the mating of the queen with a drone takes place in the air, on the wing. It is therefore important that the drone be well supplied with organs of sight and of smell, for it is with either or both of these organs that his search for a mate is carried on. It is also well known that drones mate with queens of hives located as far as 4 or 5 miles away. The probability is that the drone travels the greater part of the distance. We have lately quoted, in the American Bee Journal, the experience of a beekeeper who, having sold his bees to be transported a few miles, set some empty hives on the stand which they occupied, in case any of the bees should return. Many returned, but they were all drones, thus proving that drones wander farther away from home than workers, and so learn their way home from a greater distance.

But if the drone has powerful organs of action, he lacks in other things which makes the value of the worker bee. He has no pollen baskets, no wax-producing organs. He never goes into the flowers for nectar, perhaps does not even know that his food, supplied by the workers, comes from the flowers. He goes to the field for a good time and comes home to eat. His ideas of life and usefulness are evidently of an entirely different order from those of the worker. But he is well fitted for the purpose ascribed to him in nature.

When bees build comb in a natural way, undisturbed by man and his control, they build from one-eight to one-tenth of their combs of drone size. Let us look into this and try to find out why so much space for drones, when it is evident that one or two drones would be sufficient for the purpose of fertilizing the young queens that may be reared in each colony.

If the mating were to take place close to the hive, or in the hive, it would be possible for a very limited number of drones to be sufficient for the mating of all the young queens. But if the mating took place within short range, it would probably be of the queen with her own brother, for in nature there are not hundreds of harboring places for bees, such as hollow trees, within a few yards of each other. So there would be constant in-breeding of the same family, with a probable weakening of the race. But, with a large number of drones produced in each hive, the young queens, mating far from home, have good chance to mate with drones of other colonies. So, in natural conditions, numerous drones are necessary.

How do the bees know how much drone comb to build? How do they know when to begin on these cells of larger size? A theory which was advanced by my father, Charles Dadant, upon this matter, has always appeared to me at least partly explain the question in a satisfactory manner.

When the bees swarm, they usually have an active, prolific queen. In fact they often swarm because they are not enough empty cells in the brood chamber of their hive to accommodate the queen's laying capacity. Usually she is so full of eggs that she drops them involuntarily, while with the swarm. So, when they swarm, the queen needs plenty of cells in which to lay her eggs. She desires worker-cells, in which she can fertilize the eggs, as they pass out. So she makes known her desires to the workers. Their vocabulary is not extensive, but undoubtedly very explicit. The workers therefore build worker combs. After a large proportion of the combs have been built and they find themselves ahead of the queen, with plenty of room for her to lay, they turn their attention to the building of larger cells, which are not only used for drones, but also for the storage of honey and are more quickly and readily built, since they contain less material than the worker combs. This explains why the outside combs often contain the drone cells, while the worker cells are in the center.

An experiment which any one of us can make will show the plausibility of the above theory. Let us suppose that we give a swarm of bees a hive half full of foundation or of already built worker combs. The queen will find plenty of room at the start and the workers will build

more drone combs than they would have built otherwise. They are far enough ahead of the queen to think of building storage combs and they do so. It is therefore badpolicy to give to a swarm a part of built combs. We must either give them just enough starters to direct their building of straight combs in the frames, or we must give them a hive entirely full of built combs or of comb-foundation, so they may not have to build any.

Young queens are very active and usually very prolific. So, in a swarm containing a young queen, the bees will build more worker comb than if they have an old queen who is losing her fertility. Queenless bees build all drone combs. There is no queen there and perhaps no prospect of any.

Comb foundation is not absolute guarantee of worker combs being built. Mr. Diemer, of Liberty, Missouri, who is an old, experienced beekeeper, showed me two combs which were built on foundation and were of worker cells on one side and of drone cells on the other. The bees had evidently delayed the finishing of the outside face of the outside combs, in the hive, and when the time came to finish them, not needing worker cells, they had disregarded the rudiments of worker cells on the base and had built the drone cells upon them, so that the base of those cells did not have the regular three losanges which are found in the base of each cell in an ordinary comb. Instances of this kind are freaks and not to be expected usually. So it may be said that the giving of foundation to the swarm ordinarily prevents the building of drone comb.

In the domestic keeping of bees, where a large number of colonies are congregated together in any apiary, it is entirely useless, and in fact wasteful, to permit the rearing, by each colony, of as many drones as would be raised in a natural way by colonies left to their own devices. It is comparable to the uselessness of keeping, without castrating them, all the males of our domestic animals, whether stallions, bulls or boars. If we can prevent the rearing of an excess of drones, we are helping our bees to save, and therefore helping ourselves.

There is another advantage in preventing the production of an excess of drones. It is in stopping their production in colonies of inferior value or colonies which we consider as having undesirable traits, such as a cross disposition or too great a propensity for swarming. We do not have control of the mating of bees as we have that of our barn animals. But we can increase the possibilities of desirable matings and in the same ratio decrease the possibility of undesirable ones. In fact we achieve a result similar to that of contracting the less desirable of our barn animals.

It is true that the total prevention of drone production in the average hive is an impossibility. But the production of 200 to 300 drones in a colony is a trifle, when we compare it with the possible production in that colony of a square foot of drone brood. We have figured, as stated in the beginning of this address, that over 5,000 drones may be reared in that space of comb. In many cases, that many drones, and in most cases, at least half that many drones will be found in colonies left to themselves. Then the average beginner thinks of buying drone traps to do away with those drones. Let me open a parenthesis and say that, in dealing in bee supplies, I, at one time, positively refused to deal in

drone traps, because I considered them as nuisances, until I found that many beginners insist on having them and do not think a dealer is well stocked in bee supplies unless he keeps drone traps, among other useless "traps".

Perhaps our beginner will follow the advice of some sage of great wisdom and will cut the heads of the drone brood just before it hatches. That is to say, after permitting his bees to use up much of their activity in rearing that useless drone brood, he will compel them to dig it out of the cells and to throw out of the hive the entire worthless lot. Then they will burnish those cells and very probably allow the queen to again fill them with eggs, to again destroy this brood when it is ready to hatch.

A much better way, and in fact the only way, of controlling properly the amount of drone brood to be raised in a hive, is to remove the drone comb at the beginning of the season and replace it with worker comb. I insist that it must be replaced with worker comb by the beekeepers; for the same reason which has caused the bees to build drone comb, in that spot, would again induce them to rebuild it there.

Some people advance the assertion that drones are necessary in the economy of the beehive for other purposes than the fertilization of the queen. They claim that drones keep the brood warm. This would be an argument, if the drones did not have to be reared, and kept warm, first, at a time when young bees might have been reared in their place, and if the bees retained them when the weather takes a change for the worse. But just as sure as a storm and a change in the temperature come, which stop the crop and the yield of nectar, just as often as this happens, the bees begin to kill off the drones. Nor do they let up on these massacres until fair weather comes again, when they are again tolerated in the hive.

In Europe, where beekeepers still use many straw skeps, it has proved difficult to convince them of the necessity of the control of drone production. Many times, while traveling in Europe, I met beekeepers who said that, in some way, the drones made the colony thrifty, for they always had their best crops from the colonies that reared the largest number of drones. They took the effect for the cause. It is as unreasonable to ascribe the success of a colony to the presence of many drones as it would be foolish to ascribe the success of a millionaire to the fact that he wore expensive clothes. The drone are a result of the thrift of a colony, *not* the cause of it.

This subject of drones and drones' control is one of my hobbies. It has been discussed many times in beekeepers' meetings. But I do not believe that the average beekeeper pays enough attention to it. I believe that a comb of drone brood, if allowed to be reared and matured, and the drones from it are permitted to live till the end of the harvest, will cost the apiarist as much, in crop, as that comb would contain of honey. That is to say, I believe that when we exchange a square foot of drone comb for worker comb, we increase our share of the honey by a square foot of comb honey, not only one year, but every year of the life of that comb.

Some people believe that the bee was intended to feed man. I do not believe that everything in nature is intended only for man, for it is

too much vanity to believe that the entire universe was built just for us. We inhabit one of the innumerable planets revolving around one of the innumerable suns, neither the largest nor the smallest, and we are only an incident in the universe. I do not believe that the honey which the bees harvest was intended for us any more than potato vines were intended for potato bugs, but I do believe that intelligence was given us, to use it, to benefit ourselves in all possible ways. The control of the bee, in domesticity, is one of the possibilities upon which we can improve, until we may secure a great deal of comfort, much more than we have yet received, from the habits of that insect, if we only learn how to do it.

THE PRESIDENT.—This subject is open for discussion.

MRS. HAMMETT.—Mr. President, I would like to hear some one tell whether they ever exterminate the five drones, whether that is an advisable thing to do, and how many they exterminate.

THE PRESIDENT.—Who will answer the question?

MR. DADANT.—It is advisable to exterminate the drones, but the larger part of the harm is done when you have allowed the colonies to rear them. The bees have had to feed them and bring them to maturity. If you kill them then, you get rid of them at the wrong time. The time to get rid of drones is in the beginning.

MR. COPPIN.—It is principally the beginner that will call for the drone trap, and I am of the opinion that it does more harm than good. It will trap a number of drones at the same time, but I advise him not to use it, because they do not understand how it is used, and they trap young queens at the same time very often.

MR. C. O. SMITH.—I have seen a good many articles about the drone. I studied them more carefully this summer than I ever did before, and I think I know less about them than I ever did before, at least I know less than I thought I did before. I found drones so many times, and in so many hives, comparatively, where they had either used the worker foundation or had torn down worker comb and built worker comb, that I have almost come to the conclusion that a hive is going to have a number of drones it wants, regardless of what man does. I found I had not the experience or opportunity for observation that Mr. Dadant has had, and I believe he is one of our best exponents of bee culture, but I was astonished this summer. I think in two-thirds of my fifty colonies I found drone comb scattered. I knew there was worker comb foundation in the spring, I didn't know they had absolutely torn down the worker comb for the purpose of building drone comb. I know it was done, but it might have been torn down for other reasons, because they were dissatisfied with it. But it was not unusual to go to a hive of bees and find three or four square inches of drones. If I din't want the drones I usually cut the heads off, thinking I might save something from that time on.

MR. STEWART.—Wasn't that a pretty lively hive of bees where you had those drones, weren't they pretty good workers?

MR. SMITH.—I don't recall as to that. My handling bees is largely for experimental purposes, for satisfaction, and it seems to me very frequently that as soon as some knowing bee man discovers a certain principle to be true, if I take it up my bees prove it isn't true (laughter).

I began studying swarming last year, and the only swarms that I had were in hives not half filled with bees or with honey. I had about four or five swarms, and they all came from hives that the hive body was not as full and at a time when they were not packed full of honey or bees.

MR. HAAN.—Did they have a queen?

MR. SMITH.—The queens were practically the same age, as far as I know. Some of the older queens didn't swarm. The sun shone on all my hives.

MR. COPPIN.—I would say that in each of those cases there was a superceded queen.

THE PRESIDENT.—I think myself it would be due to a failing queen.

MR. STEWART.—Did they have plenty of honey?

MR. SMITH.—They did. I had a hive swarming within—after the young queen hatched, with about a total of two or three frames of honey and perhaps three or four frames of brood and bees and honey, all told.

QUESTION.—How large was the entrance?

MR. SMITH.—I keep my hive entrance almost always full width of a ten-frame hive. Some of them are three-eighths and some are seven-eighths.

MR. MACNEILL.—You didn't know the age of those queens?

MR. SMITH.—I knew the age of this one queen, because she hatched and she was superceded. That is, there was a swarming, and I presume they superceded the queen. I have a few colonies that invariably do nothing so far as getting any honey is concerned (laughter).

THE PRESIDENT.—Going back to the subject of drones. I will say it is a good thing to go over your combs annually, and sort out all that contains any considerable amount of drone comb. If they contain any considerable amount of drone comb. If they contain more than two or three square inches of drone comb, sort them out, and patch them by cutting out the drone and inserting good comb in its place, or cutting out the comb entirely and inserting foundation. I cut out hundreds of combs every year. The extractor is responsible for a good many of our drones. When we extract in warm weather, the combs are likely to crack and when put back they pull apart, and if your frames are not well wired they will build in drone cells. I believe it pays to wire your frames very carefully, and use nothing but good combs. If mice get in, you are going to have drone comb built in there, if you put it back in the hive.

In case combs become mouldy in winter, oftentimes the bees will tear down the comb, and rebuild it, and they will rebuild it with more or less drone comb. In such cases, it is better to cut the comb out and insert new foundation. If you are running for comb honey it is better to use foundation than drawn comb in the brood chamber, as it tends to force the bees up into the sections. In my own experience I cut out a great deal of the comb, if it is defective to any marked degree, and use foundation. Not only that, but I see that the frames are well wired. I believe the best to rear as many workers as possible, and as few drones as possible excepting in a few cases where you have superior stock. I sometimes give full sheets of drone comb if I have them, to one or two colonies of my best breeders.

MR. STEWART.—Do they always tear out the center of the comb?

THE PRESIDENT.—Not always, but frequently they do. To illustrate: In one cellar the drain pipe became stopped and the water came about half-way up the hives. It killed the lower tier of bees all the way around the cellar. In order to save the combs, the water was thrown out with the extractor, within a week after the water had risen in the cellar, some of them were used, but nearly every comb used the bees gnawed away at least half of it, the part that had been under water, and the combs as well as the bees in that thirty or forty stands were lost. It shows that a little water will spoil brood comb, in a very few days.

A MEMBER.—When you crack a comb in the extractor it is usually where the brood line begins. Do they tear that out and build their own comb there?

THE PRESIDENT.—I don't know how much they tear out. We find there is a strip about an inch wide, of drone comb, if that comb is broken in the extractor.

A MEMBER.—They built it at this point where the storage room ends and the brood chamber begins.

THE PRESIDENT.—It isn't so much that as it is when the comb is broken it leaves a space there without anything and they build it up. It sags and they build in.

THE MEMBER.—If that comb is built solid to the bottom bar, how can it sag?

THE PRESIDENT.—Not all of them are built that way. The combs built down to the bottom bar are not so apt to break when you extract. That leads us back to the manipulation by which you can do that. I find it is a pretty good plan to have the combs placed in the second story when the foundation is being drawn out or subsequent thereto, so the bees will build them down to the bottom bar. They will not do it if the combs are in the lower part of the hive.

THE MEMBER.—My experience has been that when I use a full sheet of foundation, at least half of the frames will have half of the combs built to the bottom bar. I mean that in each frame there is about half the number that do not touch the bottom bar, and it is usually in the rear end of the hive.

THE PRESIDENT.—That is probably due to the fact that you crowd your bees. Maybe you didn't give them enough room above. Sometimes they will build down points along the comb to the bottom bar, they will not build it down solid as they will if you put it above.

THE MEMBER.—In the frame is about half of the comb that will touch the bottom bar, not all the bottom part, but half of each frame.

ANOTHER MEMBER.—If you had the entrance open and the hive covered with water I suppose the bees were trapped in there.

THE PRESIDENT.—The water came up high enough to kill the bees. In the past season I have drawn out something like two or three thousand sheets of foundation in the second story, the most beautiful comb I was ever able to produce, drawn all the way along so that oftentimes there was not a bit of open space next to the bottom bar, and I think it is very desirable to get combs of that sort. It increases the area, shuts out the drones, you get more honey and more bees in your hive.

MR. STEWART.—That point is worth more than all this other talk.

MR. J. C. WHEELER.—I understand the Honey Producers' League is holding a meeting in the building and is going to come in with us this afternoon, and bring in their report. Is that it?

THE PRESIDENT.—No, if you will examine the program you will see the president of the league will give an address this afternoon, so that this association can understand what it is trying to do, but they will not make any report to us.

MR. WHEELER.—Wouldn't it be better for you to make your report to us before they come into our meeting, before this matter is sprung on us. You are their member and representative; I for one would like to hear your report from the meeting, and what you advise in regard to joining this year.

THE PRESIDENT.—If it is the desire of the members present for me to give a brief outline of what has been done, I shall be pleased to do that. I attended all the meetings of the league and was elected as a member of the executive committee, and I think I can give you some points, perhaps, that will be of value, if that is your desire.

A MEMBER.—Let us have it.

THE PRESIDENT.—You remember that we had quite a discussion last year in regard to whether or not we should join and secure a membership. At that time I thought possibly the large honey interests of the west, California, for instance, would try to dominate affairs, but I was agreeably surprised when I reached Kansas City, to note the fairness of everyone connected with it. The west gave way to the east, even more than they asked. There was no tendency on the part of anyone to try to control this affair. The aim was to form a league or association to represent all the honey interests of the United States and Canada, if they will come in, and other nearby countries. It was not the purpose of the league to form a honey-selling organization, but to form an association that will be helpful to all the smaller associations, the state and regional organizations, associations like ours, that take in several states, to benefit them in various ways.

This afternoon I will have a number of copies of the constitution adopted at Kansas City. I will be glad to have you get a copy of this, and read it over carefully, and if you have not already done so, to find out the purposes and what was done at this meeting. Mr. Le Stourgeon, of Texas, is the president. He is a big man, and I am sure you will be glad to meet him and get acquainted. He has built up the Texas Honey Producers' Association until it is one of the strongest, most powerful and helpful of any in the United States. At the Kansas City meeting we adopted the constitution, which you will find in this bulletin. The executive committee was composed of five members, Mr. LeStourgeon, president, George Rhea, vice president, Mr. Rauchfuss of the Colorado Honey Producers' Association, Prof. Paddock from the Ames, Iowa, college, and myself.

We met in Buffalo, New York, at the time of the meeting of the National Beekeepers' Association. This association voted to turn its affairs over to the American Honey Producers' League, as being broader in its scope it would be able to take up the work in a more business like

way. The National had been a failure for several years, in fact, as somebody said, has been dead for two or three years and didn't know it. What little business there was left in the National was turned over to the American Honey Producers' League which was unanimously indorsed at the last meeting of the National Association.

One problem of the American Honey Producers' League is to provide funds to carry on its work and that is one of the purposes of the meeting downstairs today, to arrange ways and means for providing funds to carry this out. It is bound to be a big thing because it has behind it the big men in the beekeeping world. These men downstairs represent millions of dollars of invested capital in the beekeeping industry.

As I said before, it is not the purpose to make this a commercial affair, but to be helpful to all other associations whether they are selling agencies or beekeeping meetings for educational purposes or whatever they may take up on the subject of beekeeping, educational, legislative, marketing or advertising. They are going to advertise in a big way as fast as funds will permit them to do so. I am sure this association will make a mistake if they do not send a representative delegate to this association at this meeting in January. I believe there is a chance of getting some value out of it.

MR. STEWART.—You say the National never amounted to anything. Thirty or forty years ago, it was said the National was the one who stood up and defended all the beekeepers in their lawsuits.

THE PRESIDENT.—That is what the new association proposes to do.

MR. STEWART.—At that time it was the best thing we ever struck in the beekeeping world.

THE PRESIDENT.—I would say the National has been going down grade. I will agree with you that several years ago it did more effective work.

MR. MACNEILL.—Does it appear to you possible that a small association such as ours can afford to be financing a member of the executive committee, or does the Honey Producers' League expect to do the financing for the executive committee. We would have to financ our delegate only, is that it?

THE PRESIDENT.—You would have to pay so much for each member of this association; it is supposed to be a dollar for each member of this association, and then it is only fair to the delegate that his expenses be paid on the road. It may not be very far away. They may hold their meeting in Chicago, I don't know, the place and time hasn't been set as yet. You may be able to get a delegate that would pay it out of his own pocket, but it would seem to me fair to the delegate you send to pay his expenses and then a dollar for each member of this association. We pay fifty cents to the Illinois, and I do not believe we are getting very much out of the Illinois Association.

MR. SMITH.—I read the constitution and by-laws very carefully, and I do not believe we are eligible to membership. It says only one association from each state can belong.

THE PRESIDENT.—That has been changed. The executive committee has been in session within the last twenty-four hours and made some

changes, and besides if you read that carefully you will find it says state associations and regional associations. This is a regional association. It is not a part of the state association, but the state association can become a part of us if they wish. There is nothing in that that would conflict with our rights to join. The clause you refer to has been ruled out only this morning, that is, it has been recommended to be stricken out at our next regular meeting. I want to say one thing in regard to the constitution. If there is anything wrong with it, it can be changed. If it doesn't suit us, the league can change it, and we ought to be represented on that. It is going to be the big thing in the future, in my opinion. I may not be competent to set forth this thing fairly, but there will be speakers here this afternoon that can describe the work of the league much better than I can, but I believe it is going to be the coming thing, and I don't believe we can afford to stay out of it.

MR. WHEELER.—They have been in working order the last year, what have they accomplished?

THE PRESIDENT.—We haven't yet had the money to do very much. It takes money to make things go. Take the subject of national advertising. We can't advertise unless we have money to do it. If legal cases come up like the one at Syracuse, New York, we can't give assistance unless we have money. We have a committee appointed to go out and get money, and there are not only beekeepers but manufacturers that are willing to come across with the cash and help out, so it is going to be a good thing for the producer and the small beekeeper.

MR. WHEELER.—What is that legal case at Syracuse?

THE PRESIDENT.—That is one in which the city has passed an ordinance requiring bees to be moved out of the city, but the beekeepers asked for help from the American Honey Producers League, and if the American Honey Producers League can get the money to handle itself, it is going to take up all those questions. Another thing is legislation. I want to call your attention to one or two points in this bulletin. On the first page we have the work of the league outlined. *Educational*—that national extension work is being taken care of at the present time. *Disease Control*—that is being handled. *Teaching Beekeeping* in agricultural colleges. *Dissemination of Information*—that is a point that can be taken up by the league. *Services in Securing Equipment*—services in securing bees and things of that kind. *Standardizing Equipment*—I think that is important. *Legislation*—looking after state and national appropriations. In Indiana we are wanting more money for bee inspection. We have there three men trying to do the work that ought to be covered by a dozen. We want a larger appropriation, and if this American Honey Producers' League can help us in that, it will be of value to every beekeeper. *Pure Food Laws and Quarantine*—oftentimes bees and combs are shipped into the state, that are diseased. Often it has been found that the combs are diseased and bees along the road have an opportunity to get that diseased honey and spread infection. With reference to inspection laws, they vary. One state has good inspection laws and another state has none.

Provisions for Marketing and the proper grading of honey. One reason we do not get a good price for our honey oftentimes is that it is not properly graded.

They are taking up the question of national advertising, and the standardization of packages. It is important, to have standard packages. One fellow puts his honey up in one way and another in another way. People want to know they are getting the same thing each time. Not only standard packages but standard grades of honey are important. A *crop reporting system* upon which we can rely. Some of you get the crop reports from Washington. They are not worth much since the information is secured from dealers who are financially interested.

MR. SMITH.—Will the league be able to make the people tell the truth?

THE PRESIDENT.—The league will be a league of beekeepers, not of merchants. The dealers say they are not going to tell of actual conditions because the other fellows will get the information, but if the reports are made by the beekeepers themselves, thy are going to give the facts in the case. *Distribution*—distribution is the big problem. In the past the beekeepers associations have been engaged in increasing production. The bee journals are almost entirely devoted to an increase of production. The whote clover regions of northern Michigan are being developed, and more and more honey is being produced. The same thing is true in the south, until the time has now come when we are producing more honey than we can dispose of at a profit.

The time has come when we must organize for better distribution, or we are not going to sell our honey at a profitable price. During the period of the war we had good markets, but that is not going to continue, and unless we devote our energies, not to more production, but to better distribution, distributing it properly over the country so that people can be supplied with it, and so that consumers will consume more honey, we are going to be up against the proposition of a glutted market. I am told that there are ten carloads of honey in Michigan more than Michigan will consume under present conditions. I know in Indiana I have more honey than I can sell unless I get some new way of disposing it. In the west they have more honey than they can sell. If that could be distributed to places where honey is needed instead of being dumped on the general market, it would raise the price and be worth thousands of dollars to beekeepers.

The distribution in my mind is the most important problem to be taken up by this league. Nearly all the men engaged in the selling business are backing the league, not that they want to dominate it, but they want to help things along in securing better marketing conditions. According to our records it is only the bona fide producers, beekeepers themselves, that have a vote in this league. The other people can become advisory members, but is it a producers' league, not a league of merchants.

MR. STEWART.—Isn't all organization simply a railroad affair, don't they become that?

THE PRESIDENT.—We have been trying to prevent that in this case by making it a delegate organization. The old national would meet here in Chicago, and the people around Chicago would come in and dominate

the meeting. The next meeting would be held in Minneapolis, and the people around there would dominate the meeting. We have provided against this by a delegate membership.

MR. STEWART.—Will they come?

THE PRESIDENT.—Yes. At the Kansas City meeting last year we had representatives from twenty-four different states and organizations. They came from New York, California, Kansas, Michigan, Indiana. They came from all over. And at our next meeting we are expecting a representation from practically every state in the Union. The organization is being recognized in the states of Michigan, New York, Wisconsin, Minnesota, and other central states, as well as in the west and in the south.

MR. MACNEILL.—Is it the intention to have a general headquarters in one place and have the meetings at that one place, or is it to be shifted around?

THE PRESIDENT.—The question of where the meetings will be held with the executive committee. If it is found advisable to be held in one place, it will be held there. It is better to have it near the center so it will be less expensive for the delegates to travel. The probabilities are it will be held near the center of the United States. We held the meeting last year in Kansas City. Kansas City is the nearest to the center of the United States of any large city we have.

MR. WHEELER.—The value of honey as food and medicine is the only key to the solution.

MR. STEWART.—It is good food value at the price you are charging, isn't it?

THE PRESIDENT.—I don't know but that my discussion of this has been rather premature, because we arranged that for the afternoon. If you have any question to ask I hope you will get after the man who expects to speak here this afternoon. He is much more competent to talk on the subject than I am. Has anyone a further question?

QUESTION.—Should honey come down in proportion to what sugar came down?

THE PRESIDENT.—I don't think so myself.

MR. NACNEILL.—It should if it went up in proportion as sugar went up. It went up about fifty per cent and sugar went up five hundred per cent.

THE PRESIDENT.—I think the price will come down to some extent but not so much as sugar. It is coming down now.

A MEMBER.—While sugar was scarce different manufacturing concerns learned how to use honey. I under stand some of them are going to continue using it. That may make some difference.

THE PRESIDENT.—It is said that there is only a very few pounds of honey per capita used in the United States, to 80 or 90 pounds of sugar. By advertising we will sell more honey, but we never can sell as much honey as sugar, because a majority of the people dont' like honey as well as they do sugar. But we should not be discouraged because people use large quantities of sugar.

MR. SMITH.—I think we often make a mistake in speaking of honey as a definite product. There is more difference in the different kinds of honey than there is in sugar and honey.

THE PRESIDENT.—I would like for you all to meet promptly at one-thirty and we will take up this discussion further. In regard to the committees, what committees shall we appoint at this time? A motion is in order.

MR. STEWART.—I move the chair appoint a committee to look over the secretary-treasurer's books.

MR. BULL.—I will second that.

THE PRESIDENT.—It is moved and seconded that an auditing committee be appointed. I will appoint Mr. Stewart, Mr. Smith and Mrs. Hammett as the auditing committee. Are there any other committees to be appointed?

THE SECRETARY.—Before we adjourn I might say that some of the price committee don't care to act any more. I believe we have only one besides myself. It would probably be better to add some more to that committee. Possibly later in this meeting we might be able to get a line-up on that. Shall we continue the price committee?

MR. SMITH.—Mr. Chairman, I move the price committee be continued.

MR. COPPIN.—Second the motion.

Whereupon the motion was unanimously carried.

MR. SMITH.—The Chair appoints all committees.

THE PRESIDENT.—Is it the desire of this meeting that the chair appoint the committee?

MR. SMITH.—I move the chair appoint the committee.

THE SECRETARY.—Second the motion.

Whereupon the motion was unanimously carried.

THE PRESIDENT.—I will appoint two of the old members. In fact there were only two this last year. The man I asked to serve didn't serve. Mr. Bull and E. D. Townsend are named. Mr. Coppin, will you act on this committee?

MR. COPPIN.—Better have some younger man to act.

THE PRESIDENT.—We need an older man for wisdom. We would like to have you on this committee if you will serve. Anything further?

MR. BULL.—I move we adjourn.

The motion was seconded and unanimously carried.

Whereupon the meeting was adjourned till 1:30 p. m.

MONDAY AFTERNOON SESSION.

THE PRESIDENT.—Gentlemen, please come to order. I see there are quite a number of good looking people here that ought to be members of the Chicago-Northwestern Beekeepers' Association. We will be very glad to have your signature and your money, because we need the money and because we want you to be members of this association. At the close of the meeting this afternoon or sooner you will have an opportunity to join. I am very glad we have with us this afternoon a gentle-

man whom you will all wish to hear, a gentleman who has done a great deal for beekeeping in his part of the United States, and I think valuable to the beekeepers of the United States as a whole. I wish to introduce to you Mr. E. G. LeStourgeon, of San Antonio, Texas, president of the American Honey Producers' League. (Applause.)

The American Honey Producers' League.

(By President E. G. LeStourgeon, San Antonio, Texas.)

Friends, beekeepers, after that introduction, I do not know what you may expect from me, because I am a sort of radical, and bolshevik. I believe with Michaela, a great French philosopher, that no greater absurdity would have existed on earth, if a man hadn't silenced the questionings of the child—if we do not question the old authorities we cease to grow.

If Galilio had been satisfied with the theory of the cosmic universe, we would never have known anything about the real facts. If you take a watch and show it to a little child when its hands are moving, and you tell him there are wheels back there, he immediately wants to see the wheels. That is the attitude of mind we as Americans and business men must always take. We must always, whenever possible, when facts or conclusions are given us, ask immediately, like the little child, let me see the wheels.

That may not sound like an introduction to a talk such as I think Brother Miller may have wanted me to make, but I think I can give you an application of it. The American Honey Producers' League—there is no such animal. It is a thing now in process of organization. For many years in the United States we have had an organization of one kind or another, changing its skin like a snake, or coming out of one chrysalis into another living butterfly, called the National Beekeepers' Association. In my memory it met some thirteen or fourteen times. I think it amended its constitution and changed the form or plan of its activities from twelve to fifteen times. It never got anywhere. Finally at the meeting two years ago it was suggested that the National Associaion call a conference of the representative organizations of the various states, to be held in some central place. They selected Kansas City as their meeting place and asked that in January, all beekeeping and allied organizations send delegates to meet and formulate some plan to be presented to the next meeting of the National Association whereby an organization of organizations could be made, where some business thought should be put in the future business of national beekeeping.

About twenty-four or twenty-five state organizations responded to the call sent out by President Kindig and sent delegates to this conference. The conference met in Kansas City, and after two or three days of deliberation, after two or three days of studying over the problems common to beekeepers in the United States everywhere, and the possibility of united national action from the various state bodies, they formulated a proposal of organization, a proposed constitution, and a proposed plan of activity. They were merely a committee meeting under the direction of the National Beekeepers 'Association, and had to report

E. G. LESTOURGEON.

to the National Beekeepers' Association. The National Beekeepers' Association was held in Buffalo, New York, and this committee reported to the National Beekeepers' Association its findings and conclusions.

The National Beekeepers' Association upon a motion made by one of its older members, Mr. C. P. Dadant, dissolved or ceased its activities as the National Beekeepers' Association, and merged itself into the American Honey Producers' League, ceasing to exist as an organization, ordering its Board of Directors to wind up its affairs, so that the American Honey Producers' League was born at Buffalo and has never yet gotten out of its swaddling clothes, so to speak.

As to the kind of organization the American Honey Producers' League is, state and regional bodies all over the United States affiliated with it by electing one of their number as a delegate, who would be sent there as their voting representative in the body, and raising a minimum of $100 as a fee for the organization to join. Practically every beekeeping state west of the Mississippi River has voted to affiliate. Some of them have raised the money and are waiting for formal notice that their money is payable, some few states have forwarded their money already. Some half dozen corporations that are made up of beekeepers in various states have also organized or signified their intention to join, and await the moment to pay their first fee whenever the work of the league is ready to be launched.

Nearly all the large interests interested in the furthering of beekeeping, and in the publication of the literature, and in the problems of beekeeping, have signified their willingness and intention to join in the movement to the extent of digging down into their pockets and paying part of the incidental expenses of the league.

We have not yet made a complete budget of the absolutely necessary expenditures, but we think there ought to be allowed somewhere in the neighborhood of ten or twelve thousand dollars per annum.

We do not consider the possibilities, perhaps, for a few years, of more than fifty or one hundred organizations affiliating with the league. The minimum from say one hundred such organizations would amount to ten thousand dollars, therefore prior to the time that one hundred organizations will have affiliated and perfected their membership it will be necessary for the activities of the league either to be carried on by voluntary contributions from large, live interests who are interested in its furthering, or from individual beekeepers who may be interested in the furthering the activities of the league and who will donate some of the expenses. The other thing that might be done would be to limit the work of the league to the funds the league has, and let it grow as its influence grows, until such time that the ten thousand dollars necessary for its functioning might be available.

As to what the league has done, often when I go to a bunch of men at a beekeepers' meeting, a man immediately asks, what has the league done, what has been its activities. Of course I think it is because the man who asks that question does not know that the league is a baby. It can do nothing. It is his baby. There is no league unless there are beekeepers identified with it. There can be no league so far as the Chicago-Northwestern is concerned until the Chicago-Northwestern and

its neighboring associations have become identified with it. Service doesn't grow on trees. We give service and we receive service, and we will never get any more than we give. We must give in order to receive. There is no doubt of that, and if the beekeepers of America will all of them give their services to the league, if they cannot give active service, give work of one kind or another, if they will give strength and money, either as individuals or as associations, then the league can give them service. The service that the league can give has been variously described and presented. It is merely, so far, a program. It is a hope of something that can be accomplished.

We have proposed and hope to have a bureau of legislation, that this bureau or committee working by and with the league shall in your state if necessary assist in getting vital, broad, controlling laws, quarantine laws and enforcement of pure food laws. We have hoped this committee can get the legislators in the various states to make these laws universal. We have hoped for laws pertaining to interstate relations, the prevention of the shipment of diseased bees from one state to another, from Wisconsin to Illinois if you will, that the national Congress should say, perhaps, that it would have some sort of quarantine regulations and control measures.

On questions of that kind a league that represents organizations such as this in every state in the Union could have a powerful influence upon your local legislative bodies, and a much more powerful influence upon the legislative body at Washington.

We want it to have a bureau or committee on education, this bureau or committee on education to foster the teaching of agriculture in our various agricultural colleges, this committee on education to undertake the duty wherever possibe of educating the people of the United States concerning beekeeping, its possibilities and its dangers, and to keep the foolish from running headlong into beekeeping and the unfit to try to keep bees when perhaps you and I know that it is wiser sometimes to keep a man from going into the business for his own good, rather than permitting him to do so. It is not our function, it should not be the function of the beekeeper to keep a man out of the bee business, because the more bees that are kept and the more honey that is produced, in my opinion, the greater will be the demand for honey.

We wanted to have a bureau of arbitration, so that whenever a complaint arose between two beekeepers, we would settle those differences among ourselves. It can be done in many ways, by having an understanding. For instance an understanding on what we call a nucleus. If you in Wisconsin or Michigan buy a nucleus from me in Texas, it always has been if I send you a two-frame cell brood from Texas that distance they will starve to death before you get them. The same way with a queen. I saw a judge at one of our fairs show a 3-bander queen and called her a Cyprian and give her a first prize. He was a good judge of bees, too.

This American Honey Producers' League functioning and acting for all of us could formulate a code, a standardization of these things, so that when you bought a colony of bees you would know what you were expected to get at least. We could ask the bee journals that they carry

an advertisement from a shipper of bees or queens or a nuclei who would agree to stand by and abide by the standardization rules of the committee of this league.

We want to have national advertising. Here is the rock on which we get into a row every time we say it, because advertising costs money. It costs lots of money, but if you will notice the great associations who have put raisins, almonds, walnuts, citrus fruits on the American market have been lavish with advertising, and you may have noted that the more lavish they are the more of their product they sell and the more popular it is. I am not an old man yet, but I remember the time I saw my first grapefruit, and when I tasted it I turned with horror from the thought that people would use that kind of stuff for human food, and yet there is hardly one of us here now that did not eat grapefruit for breakfast this morning. What is the answer? That the men in Florida who could raise this commodity more cheaply than any other commodity, whose climate and soil were adapted to those products, got together and crammed, literally crammed grapefruit down our throats, because we could not object to it; we could not open our favorite magazine without seeing the beautifully decorated grapefruit staring us in the face.

We talk about over-production of honey in the United States. There is no such thing. There an be no such thing in a country that uses a hundred pounds of sugar in some form per capita per annum, and at the same time uses less than one-half pound of honey; we know that we do not produce honey enough. We are starving these good people to death. Why my family alone use about two hundred pounds of honey in a year. I am so selfish that I only raise enough so that a few of you can get it, and the people of the United States as a whole get only a half a pound per person. If we would take a leaf out of the books of those poor sand grubbers in Florida, who have the poorest land the Lord ever made, and who raise a product that is not edible at first sight, and make you eat it by countless carloads, you will see that we can do infinitely much more with honey if we will intelligently advertise it.

The chief and main function as I believe of the American Honey Producers' League is to raise a fund from among ourselves, from among our business men with whom we deal, the can people, the glass people, the supply people, the people that we spend our money with, to raise a fund from among them, and they will be glad to help in this work. Let one of the ladies go home and look at her Ladies Home Journal, she will see an advertisement for Airline honey there. Some of us individually advertise our own honey. They would be glad to help us do it, because we can not advertise honey without helping sell your honey and everybodyelse's honey. We must educate the people of America to eat honey, and we must pay the bill, but it will come back to us. There is no doubt that in the sale of honey it will come back to us.

How is this money going to be raised? If fifty or one hundred associations come in and pay one hundred dollars minimum fee, how are you going to have this advertising campaign? The league expects to have a committee, separate and distinct from these other committees, whose duty it will be to employ an intelligent business man to expend whatever money is in its hands for this purpose, and to raise indepen-

dently from various associations and manufacturers a fund to start an advertising campaign.

A surprising thing happened this morning downstairs at our conference. One gentleman said, we want to start this five thousand dollar fund for advertising. We will put you down for two hundred dollars. Another man said, you can put me down for three or four or five times that if you are really going to advertise. Advertising is the spirit of the age. My association in Texas spends more money for advertising than we are even talking about. One association in California expects to spend twenty-five thousand dollars advertising honey in the city of Chicago. As beekeepers all over the United States, how much can we spend if we want to tell the people of America to use honey, over and over again? When we do that there are going to be constant demands for honey, because when you have advertisements in the papers that go into the home they are going to be read and they are going to think about honey. They will want to eat it. They are going to go to the grocery store and ask for honey, and they will have to go from store to store in order to get it. There are thousands of grocery stores in this State of Illinois that have no honey on the shelves. I made that statement in Buffalo, and we walked around, all around trying to get it. We could not find honey. The right way to sell honey is in five and ten-pound pails, for a food, for something to eat, not something to set up on a pantry shelf that everybody is ashamed to stick a finger in because if they did there would not be anything left in the jar (laughter).

That is a good way to advertise honey. The bottler is the only man now that is selling honey, but it is our fault that honey is being sold that way. We dont' do it that way in Texas. We ship carload after carload in three and five-pound pails, and our people buy it that way. The people in California ship it in carload lots. They ship it on over into New York and sell it there in five and ten-pound pails to the people of New York. That is the way you are going to do. You are going to study selling honey, and you are not going to sell it that way until the people of the United States know it is a food and know something of its values.

To go back to my thought of advertising. You try to find a grocery store that has honey. You and I buy the honey and take it home, but this housewife has called on three or four or five grovers before she found what she wanted. She has made that grocer say to his jobber salesman when he comes again, "I am getting calls for honey, send over a case." And the jobber salesman goes in and turns the order in and says, here is an order for honey. And the dealer thinks that is very fortunate. He has had cases of honey there for four or five years, and now that he has got rid of them he is not going to buy any more. So the salesman goes back. The house was out, we didn't have any. The woman comes in and says, have you got that honey? He cannot give her the honey. Now we have got them all started. They will get the honey because the housewife will insist upon having it, and the honey stores are going to be depleted and they are going to yell at you and me to produce more honey. There couldn't be any such thing as an over-

production of honey, it is under consumption. Honey is a food and we can never produce enough of it in the United States.

Dr. Phillips has told me we could produce in the United States ten times as much honey as we do now, five pounds per capita. Which one of you do not eat five pounds of honey in a year? So we can reach the supreme aim. I would be hungry if I didn't eat more than five pounds of honey in a year.

I am afraid I have gone far afield from the American Honey Producers' League,, and its final success will revolve around again to the subject of advertising. It is true the transportation problems are important, and the league hopes to be able to appear before law making bodies and classification committees and assist beekeepers everywhere in the matter of rate making and any other problem that may come to the attention of the beekeepers of the United States as a whole.

It is not the province or desire of the league in any wise to interfere with the beekeepers' association in Michigan, Wisconsin, Iowa or any other state. We hope the problems that concern those states can be worked out by the associations in those states. The league is intended to be an association of associations that will only have its fingers in the pie on questions coming up from every state, that will come to all of us, such as transportation, rate problems, educational problems, and so forth. The league will probably do brood control work, the standardization of beekeepers' supplies, classification and grades of honey, and those things that are common to us all. The future bee business depends on them, and only by united action can we hope to solve those problems. The state of Wisconsin tried it but have arbitrarily legally made grading rules, and honey made in Wisconsin can not be sold in Wisconsin unless it conform to the arbitrary standard or the rules, and you will see that every one of them have their own ideas as to what the standard grade ought to be.

If we could, among the small body of men we have chosen, work out a plan for the entire United States on standardization and grading, don't you see how much good it could do. The American Honey Producers' League cannot make its findings mandatory, but if the Chicago-Northwestern Association had its most trusted man selected as a delegate to meet with the most trusted man of fifty other associations, they could put their heads together and solve the problems common to the entire fifty complement organizations, you would have more confidence in their findings than you would have in the findings of a legislative committee, or in the findings of one of the old time organizations.

When the National Association used to meet, it was merely a local association from a radius of one hundred or one hundred and fifty miles. One man would come from San Francisco, another man would come from Texas, and still another from Florida, and there would be twelve or fifteen out of town people there, then the people from right around the country would be there. If a complaint came up, how would it be settled? By the local influence there. Your state organization is more or less the same way. Those who meet in the state capital consist usually of every beekeeper within a few miles radius of the state capital,

and the question is decided after all by the local state association, and sometimes county association in whose area the meetings are held.

The plan of the American Honey Producers' League is to have a voting membership of the league, delegates and representatives that are strong enough to be able first to pay $100 for the privilege of being members, or else to have as many as a hundred or more members in order to perfect their membership in the league, at $1.00 per member. This to begin with. That is as exact a statement of the league as I can give you, and some of the activities through which it expects to function are a paid secretary who will maintain a clearing house of beekeepers' information, who will be at the call of beekeepers anywhere and everywhere for any problem that confronts them.

I started out here talking about questioning authority, and you wondered perhaps if there was any reason why I should talk about that from what I have said, and I will tell you why. There have been since my father's time, many associations. My father was an old beekeeper and knew Langstroth, he was a beekeeper before I was born. Some of you may know all of the organizations that have existed as long as you have kept bees. Did they ever accomplish anything? You paid your dollar to the secretary and received sometimes a printed report of the meeting, and you received once or twice a year, maybe, a letter from the secretary, or saw the name of the association mentioned in the paper. You had an annual meeting and you read a paper on what makes the queens supercede one another, or why don't a queen lay an egg in a drone cell, or some other vital question like that to your business, and your society became a mutual admiration society. You like to see the time come when the state association was going to meet, because we get together down at your college, and meet old friends. We get together, we go back and visit the school when we were boys, and tell tales about what we used to do, and we enjoyed our state association meeting, but as business men or beekeepers did we get anything out of it? You couldn't kill those associations because they became associations of memory, associations of the pleasures and thoughts and recollections of happy days and happy meetings. Maybe we met our girl at the association meeting; maybe she is now our wife, and we go to that association meeting every year like a honeymoon, but it is no longer a business matter. It does not sell any honey. And so that association tottered on and on, sometimes till the last patriarch died, as one man expressed it.

In contrast to that there has grown up a group of vigorous young men who didn't have anything to do with the association. They were interested in the kind of containers to put their honey in, where they could buy their bee supplies most cheaply. They were business men making their living out of beekeeping, and they went to these associations and found nothing there and dropped out, and organized an association of their own. Sometimes they called it a corporation. Sometimes fifteen or twenty of them would club together and buy a car of bee supplies, but before long the county organized an association that was cooperative. There was nothing social about the meetings. When they met it was, "How much money have we got in the bank?" "What do you fellows think about extracted honey this year?" And that is the

kind of questions that would come up at these meetings. The older associations never woke up to the fact that that kind of beekeeper association existed until they began to hear about tons and tons and tons of honey being shipped from California. Who shipped it? An apiary didn't ship it. An association of business men called the California Cooperative Honey Producers' Exchange shipped it. Nine hundred ninety-eight beekeepers of California acted as one man, buying as one man, advertising as one man, selling as one man, putting honey on the business map of America.

Here is something about Texas. They raised 19 million pounds of honey, I read in the paper, and where do they sell that honey? Well, they sold it, and they sold most of it under one brand in a limited area of territory that they picked out because they had least competition there, and they advertised Lone Star honey extensively until everybody in the district knew about it. That is the way we sell honey in a western organization, because we do not wait for me to raise my honey and peddle it around on the back of my wagon to my grocery store. We take it down to the association office and tell them to sell it. As these organizations grow and prosper and multiply in number, they begin to have questions in common. They begin to study the locality, because they want to know where to send the honey to sell to the trade.

You say these western fellows are going to flood us with their honey. They are not going to do anything of the kind. If you use the same common sense and business methods they are using, provided you advertise your honey, put it up in a package that the trade demands and label it neatly and ship it through the regular channels of trade into the hands of your consumers, you will get the same results that they do.

As these problems begin to develop, Mr. Rauchfuss would write to Mr. Justice of California and say, how do you handle this, and we are helpless on account of the transportation problems and other things, then Mr. Justice and a dozen others began to get together and talk about cooperation among ourselves, the beekeepers of Colorado cooperating with the beekeepers of California. And we would like now to see the beekeepers of Michigan cooperate with the beekeepers of Indiana and the beekeepers of Indiana cooperate with the beekeepers of Illinois, and that applies to every one of us. And out of that thought was born the proposed American Honey Producers' League.

Don't any of you say, what has the league done? It has done nothing. Ask yourself, what have I done for cooperation? What have I done for the American Honey Producers' League, and when you answer that question honestly we will have a sure enough American Honey Producers' League and you will be members of it. I want to suggest that if I haven't touched some of the points in your minds, I would be glad to answer any questions that may be asked. Then I hope that the gentlemen will discuss this subject of the American Honey Producers' League. We are very fortunate in having today more than a half a dozen men who met in Kansas City a year ago. We have almost in its entirety the resolutions committee to whom the various suggestions were made or referred to when the present constitution of the American Honey

Producers' League was written, and I hope that out of the discussion that we may have, if you desire, that some thought will come that will permit some of those men to elucidate some point that I have forgotten. I thank you. (Applause.)

THE PRESIDENT.—I would like to hear from anyone who is interested in regard to this league.

MR. KILDOW.—He says the organization of the state have never been any benefit.

THE PRESIDENT.—They have been a stepping stone to this thing coming now. If it hadn't been for the State organizations we couldn't have had this. You can't jump into any big things at once. It must be gradual. That is what this association has done. I believe this is a question we ought to decide at this meeting.

MR. MACNEILL.—For an association such as our own here, I am not wishing to criticize or raise objection, I am only asking for information, I would like to know what these various questions, for instance of advertising and distribution especially, how that could be handled to the advantage of a small association such as our own, or as perhaps even a larger one. As Mr. LeStourgeon says, production has never anything like taken care of the demand possible to have from the producers. We are all able to sell our honey, and we are all getting pretty fair prices. Is it his idea that the advertising which he would put forth would make the demand so great that the prices would be increased over what we are now getting, and if so would that demand be more than we could supply? We all know we have sold and are selling our honey at good prices. Where is the advantage that is going to be reaped from the campaign of advertising the future demand for honey?

THE PRESIDENT.—Any answer to this question?

MR. MCMURRY.—I think I see the gentleman's viewpoint. He is perhaps a little misinformed in his statement that we have all sold our honey and are selling honey for a high price. I believe Mr. LeStourgeon said the California people are in Chicago with carloads of honey, proposing to spend twenty-five thousand dollars to advertise California honey in Chicago. Now if they dump that honey in here on Chicago, without the proper advertising, so as to take it up, that will affect materially the tons of honey up here in Wisconsin. I think I have got a great deal better honey than they have, but here is what hurts, and here is where I see this league is going to do something that nothing else has ever done before: through this league we can do something toward an equal distribution of honey, with all the fine honey produced in Wisconsin, the thing that has hurt and hurt seriously has been this: we may be selling honey there wholesale for twenty or twenty-five cents a pound, and all of a sudden California or Colorado will dump three or four or five or six carloads of honey into Milwaukee, may be at two or three or four or five cents below what we are getting wholesale. I don't care whether that honey is as good as ours or not as good, down goes the price of our honey. The thing of it is this: no man liveth to himself and no man dieth to himself. All industries are tied up together. What helps the beekeeper in Florida will help me in Wisconsin. What hurts me will hurt the man in California.

It isn't that we want a higher price than we are getting, but some of us say if something isn't done honey isn't going to be as high as it is now, and that very shortly, too. There has been a possibility this very winter, of ten and twelve-cent honey, and if the situation isn't handled carefully, if it hadn't been handled carefully by these cooperative concerns and by these men willing to cooperate, I believe we would have been suffering seriously this very day, in the honey market.

I think I can see, and we will all be able to see that with the cooperative organization here, which as Mr. LeStourgeon pointed out will have no binding power at all, but simply cooperate with these great state organizations and regional organizations heading up into this one national organization, we can put on not only tremendous advertising propositions which will take up our honey, but with the great crops of honey coming on the market they can be handled in such a way that the markets will not be glutted in Chicago and starving at Philadlephia, as has happened in past years.

There have been two places where everybody wants to sell honey, Chicago and New York, and when you get about a half a dozen big organizations that begin to shove their honey into these centers. If they knock the price down in Chicago it goes down in Wisconsin. If they swamp New York and force down the price in New York the price goes down in Wisconsin, too. There are some things we can't do in State Organization. There are some things we can't do as individuals, but there is nothing that we can't do along these lines, if we have gumption enough to get together and work and pull together. Other people have done it, and if we do not do it it is because we haven't the gumption to do what we can. Sometimes I think we ought to get a big bathtub and fill it full of gumption and a lot of us ought to take a bath in it about once a week to absorb it. And if we do not get together and pull together and make this thing go along the lines outlined, and if it isn't started along the right lines we will amend it. If this thing isn't right we will fix it, and we will perfect it as we go along (applause).

THE PRESIDENT.—Anyone else have an objection or a question? I am sure if anyone here doesn't understand this proposition thoroughly, or if any one has any question about it, or any objection to the working of this league thus far, we have here the opportunity to have those things explained and defended. There are a number here who are members of the American Honey Producers' League and have been instrumental in organizing it. We will be very glad to have any difficulties ironed out at this time.

MR. LESTOURGEON.—The gentleman touched me very much in reference to our older organizations having done no good. I have enjoyed them, and anything that adds to human pleasure or enjoyment or anything like that does good and makes the world a brighter, happier place to live. The associations have done good in an educational way and as a developer of great thinkers in beekeping, in fostering the industry to the point it is now, but the point I wanted to make was that, that it did us no good here in our pocketbook, that they were organizations that were not organizations with business brains in them and behind them. They were academic debating societies. They were places where we came together over academic question and developed our thought, and to develop

educational ideas concerning beekeeping, but I see a different organization. I see an organization that is a business organization, that helps us in our business as the National Canners Organization helps the canners, and as the Lumbermen's Association helps the lumbermen everywhere. The other gentleman asked a question, and I am afraid Brother MacMurray didn't exactly catch it. He said in a small local association like the Chicago North-Western that he wondered what the league would do for such an association. It has an enormous market. All Chicago lies here, and wherein does it need any advertising? I am not going to answer the gentleman's question, but I am going to ask you to permit Mr. Parks, who has already answered this question once before at another meeting, to my satisfaction, to answer that gentleman's question, if you will permit him.

MR. PARKS.—Mr. President: I am almost sorry that I have to attempt to answer that question. Nevertheless, it gives me considerable pleasure to say what I think about it. While I think the actual facts in this case may be different, I have had considerable experience in organizing associations and have met the very question that you propose here, but it one which looks entirely different to a person who is outside of the small association than it looks to you who are on the inside of the association. The reason of that is just this: you see ahead of you the little line of selected customers that you have built together in your trade. You are figuring on what you have done today, and you figure that you may be able to keep up that trade, but there is no future to it. You can do the same thing over and over again. You never get anywhere. The demand for honey is going to increase. You can't stop it increasing. These other associations, these commercial organizations are going to so advertise honey, whether we as the American Honey Producers' League or not, or whether you as the Chicago North-Western Association does, the business men are going to push honey until the demands that is made by your own local territory is greater than you can fill. What is going to be the result? The result is going to be just exactly what is going to happen here, and very shortly. You have not satisfied the Chicago market. And the honey is coming in here and it is going to be sold, and some of you people are going to lose your local trade that you have built up. You can't afford to advertise yourselves. No state can afford to advertise itself to the extent that it will completely sell its product. I am not speaking now of the state organization. You cannot advertise in any way that will dispose of your total products in your isolated locality, we will say your restricted locality, without advertising honey far beyond where you are selling honey, because just as soon as you put down a thing on a piece of paper the next time you hear of it, it will come back to you from London or from New Zealand or some other point of the earth. We recently turned loose some stuff and got a return from it in a very short time, from Finland. The same thing is true right here. If you advertise your honey enough to attract people to buy the surplus you have remaining over, you are going to sell somebody else honey, and you can't afford to do it.

This is a cold business proposition. It isn't a piece of machinery work. If you will associate your association with the greater associations around about you, so that you have a voice in the deliberations of those

committees and bodies that will make a survey of the United States as a whole, so they know where they can put the honey without glutting the market, you will be benefitted thereby. Glutting the market is the worst thing that can happen to you. We have never shipped a carload of honey to New York City, if we knew it, that glutted that market, but we don't know when everybody in the United States is going to take a notion to put honey on the New York market. At the same time we don't know there is a town down here, that will take two carloads of honey if they had the proper advertising. If you are going to have a say-so in that body that is going to pre-determine where to put that honey, there is never going to be any such thing as having somebody swamp a market, because nobody wants to do it if they can get a market outside.

Here is one of the things that is of intense interest to you. You are a small association. I think you are large in numbers, but your territory is small. You may have some trouble in securing freight rates. I suppose everybody who ships honey does have. You just try, say a bunch of fellows over in the northwest part of the State of Illinois, to go up against the Interstate Commerce Commission and get a hearing on a thing like that. They won't even look at you, but believe me, when a bunch of men representing the allied powers of every single association of beekeepers and all men that are directly and indirectly interested in beekeeping in the United States, sends their representative there, they will listen to him because they know if they do not listen to him that that man has got right in his hand the ability to floor every one of them. If you don't believe it, try it out. The beekeepers of the United States in their associations that they are interested in, that they have got dollars and cents in, that means bread and butter to them, when they want a thing and want it bad enough to back it up by a dollar or two and a little personal work, can get anything they ask for. We know exactly what we can do in our state. In about thirty-six hours we can about turn the state the way we want it turned, because scattered over the state we have got members, and those men's bread and butter depends to a certain extent on what they get for their honey. In business it is dollars and cents that count, and it is a representation of dollars and cents that count, and when you have got your dollars and cents mixed up into a thing, it is going to mean a lot to you and you figure on just that per cent of your capital that you invested, and if you put that thing in and remember that you together amount to a little, and we down in Texas only amount to a little, and Wisconsin only amounts to a little, put the whole thing together, and you pick out your highest man, if the association has a man that is over and above surrounding associations in so far as one point is concerned, and that man with the ability to see about seven weeks ahead or ten years ahead, get those men together, your representatives and the other representatives, put them together, and your association is not going to be a thing that can be caught and rolled, but you are going to have an equal representation, and your association will get from that more benefit than they can get from years of individual work. You will be surprised, in a few years you will be wondering why you ever existed by yourself, trying to build up your own little line of business, trying to deliver anywhere from fifty to fifty thousand

pounds without asking and getting the aid of some man that could do work cheaper than you could do it.

A man in our association marketed his honey this way. He got considerably more a pound for it than we were geeting. We like to have that kind of man, but when he came to figure out at the end of the year if he had sold his honey through the association he would have made more money selling at a lower price through the association than selling it at a higher price, but he lost because it cost him so much to sell it. You will find that true. By getting into a large association where you get a better line of insight into the selling and advertising, and into the distribution and standardization you are going to find that even though you may not get so high a price there will be more money come back to you.

I don't know whether I have even touched the point or not, but I have delivered myself of some of the things I wanted to say. I thank you. (Applause).

THE PRESIDENT.—Any further discussion? If no one else has anything to say on this subject, we will have a recess for a few minutes, after which we will take up the question of joining the league by this North-Western Association. In this recess we would be very gald to have any of you who wish to become members to sign up with our secretary, Mr. Bull. It will be helping the cause and helping you.

Whereupon, a recess was taken by the meeting.

THE PRESIDENT.—I see that our league friends have deserted us, leaving us to fight this battle ourselves. Has anyone a motion? You can present a resolution of any kind and after a second it is open for debate.

THE SECRETARY.—I make a motion that the Chicago North-Western Beekeepers Association join and become a member of the American Honey Producers' League and that a delgate be elected to attend the next annual meeting of the league to represent the interests of this association.

A MEMBER.—I move its adoption.

THE PRESIDENT.—It is moved and seconded that it be adopted. The question is now open for discussion.

A MEMBER.—I move a committee be appointed to inquire into the financial side of the question and report back to the association as to our ability to support membership in this league.

Which motion was duly seconded.

THE PRESIDENT.—You have heard the amendment and the second. What should be done with the amendment? Are you ready for the question?

A MEMBER.—It is possible to state right here what the financial obligation would be, isn't it?

THE PRESIDENT.—I think we can very easily determine that.

THE SECRETARY.—Up to this morning we had a balance of $38.48, but we have the dues coming in during this meeting, which ought to be able to take care of the matter. The amount of dues is $1.50.

THE PRESIDENT.—One hundred dollars is required to be paid to the league as a membership fee, and the expenses of the delegate would

depend on where the meeting is held. Last year at Kansas City there was something like $39 raised among individual members to bear the expense of the delegate. It cost more than that. I think the intention is to hold these meetings as near the center of the United States as possible. It may be held in Chicago, in which case the expense would be very little, practically nothing, and I am sure if we can join, if we can raise the one hundred dollars to join, a number of us would be glad to make it sufficient to pay the expenses of the delegate. I am willing myself to give ten dollars towards it. Probably others would be willing to do something.

MR. GILL.—Mr. President, last year I attended the meeting of the Wisconsin Association, and I was very much impressed with what the State of Minnesota is doing up there, and I attended again this year, and was inspired again, and I have come to feel more and more that unless beekeepers are organized they cannot get the best results. I think that is where we lack in our own State, we are not in a position to make demands, and we are not going to get very much from the hands of our State. I think anything we want or anything we should want, the thing we need will come only when the demand comes from the outside. I believe therefore for this reason in the organization, and I believe we ought to go into it. Furthermore, I believe we ought to go into it because I always feel like we ought to try something new, and there are back of this organization some of the best beekeepers in the country, and we ought to have confidence that it will be a good thing. As far as my confidence goes, I want to be on record as favoring it.

THE PRESIDENT.—I might state for the information of those here, that New York, Michigan, Wisconsin, I believe Minnesota, California and Texas, Colorado, all the leading honey producing states, are going into this. I understand Indiana will, in all probability, and many of the other states are falling into line.

MR. SMITH.—For that very reason, that is one of the strongest reasons I have for thinking we ought to stay out. We have members here, quite a number, from Wisconsin. We have quite a number from Michigan. We have them from Indiana and Illinois. If one of these states joins this Honey Producers' League, we all belong, because we all belong to some of those organizations. This organization every year for a number of years has joined our State association in a body. When we join the State association, if we do this year, and our State joins the Honey Producers' League, then we are members of the Honey Producers' League. It isn't necessary to have two memberships.

Another reason is that I don't believe they can do the majority of our membership very much good, and I do believe that they will take away from us quite a good deal that we appreciate and that we enjoy. There is a great deal that we can do ourselves, as an organization, if we will work as an organization, but for the past two or three years we have spent a large portion of our time out of the two days that we take from our work to come here and learn something about beekeeping. talking about getting into some other organization. It seems to me it is a waste of time. Why not join that organization in the first place as individuals and quit? I have read their by-laws very carefully, but I haven't

been able to find out how to really get into the organization. I see individuals, according to the charts, join the American Honey Producers' League, and I see that they are joining in bodies. If they can join as individuals, anyone of us that wants to join can pay our money and join, and if they join in a body you can join through the state and save the expense. We have got a balance of a little overthirty-eight dollars, and we are going to spend a hundred dollars to get into another organization. An organization don't amount to anything unless the organization does something for you that you want done. That organization isn't going to do anything I want done, not a thing that I know of. They are going to do several things that I don't want done. They will probably send forty or fifty carloads of honey from California and Texas into this market, and from other places into this market. They are going to standardize honey. If I produce a high class or grade of honey, they are going to make my honey go as the standard of all honeys. That isn't the way I want to sell honey. I am going to tell you what I do. A fairly good amount of my trade is to people who sell, who buy at wholesale and sell Airline honey at retail. They buy my honey, put it on the table and eat it. I am not saying anything against Airline honey except that it is one standard thing all the time, and we get tired of that. I wouldn't eat one-fourth of the amount of honey if I had to eat the same brand all the time, and I don't believe you would, and I find my customers, if I can change them and give a different kind that is lots better than the kind you have sold me before. They will use a lot of it, and they will buy something else and that is better. I have done that, for it tastes better.

We have an organization here. I thought we had an organization that met for the discussion of beekeeping questions and the academic questions that some speaker sort of made light of, that you didn't know anything after you attended them. That is why I joined this association. I would rather come down here and learn a fact that is true about beekeeping, that somebody has dug out, that will help produce a few tons more of honey; even if it doesn't help me to produce any more I would rather learn that fact about beekeeping than to get two cents a pound more for my honey. This organization talk sounds very nice, but there is another side to that question. There are people in Chicago paying one hundred and fifty dollars a month for a sixty-dollar apartment, because the carpenters are organized and won't work for less than ten dollars a day, and they are suffering from it. I am not speaking against their organization, but I know what happens in organizations. One of my customers was a switchman. He joined an organization, he didn't have any work for eight months during all the time last year when wages were so high. He couldn't work because he belonged to that organization. He thought when he joined that organization that he was going to get a good deal bigger wages. He lost more last year than he will recoup in ten years if he does get higher wages. There are two sides to all questions. I want you to think of the other side and see if the organization is what is going to help you. It really seemed laughable to me that we, with the one hundred and fifty dollars, about, that we take in every year, and our expenses to pay, that men whose time is

worth fifty to one hundred dollars a day would take it up coming here trying to get that money. They are here trying to get one hundred dollars out of us. What are they going to do with it?

I want to tell you what I know happened. I talked with the officers of an organization called the National Beekeepers' Association. The secretary told me they had two hundred members. Those members had all paid their dues under certain by-laws, if not under a charter of the state, and I think it was the State of Illinois. I saw seventeen of those two hundred go into a meeting, take all the money they had, practically disband the organization and start this Honey Producers' League. That didn't suit me. It may be none of my business. I thought I was a member there, but they finally ruled me out as being a member. But that is what happened. Then they tell us that down in Buffalo that organization abandoned itself. I would like to ask the question, how many of the members were there? That organization was organized for a certain purpose, and these people paid their money in for a certain purpose, and these men who came in and organized the Honey Producers' League took that money and used it for a different purpose. The man at the head of the league now may not be the same man. In fact, I think they have changed. I was delighted when I got the by-laws after their Kansas City meeting. I read them, and I saw by those by-laws that we couldn't join them, and was delighted. I said, we won't have to take up another entire two days in the Northwestern discussing this matter, because we can't get in. Now I find the committee has met down in the room below us and changed their by-laws so we can get in. I thank you for your attention. (Applause.)

MR. MILLER.—I might say that some of the statements made by Mr. Smith are not based upon the facts. I know Mr. Smith intends it all right, but you have not stated the constitution correctly. One point is this, that we will not save any money by joining the Illinois and letting them turn our money over to the league. It doesnt' cost any more to join directly, and as far as I am concerned I don't see that the Illinois has done us any good. What have we got back? Practically nothing. Here we have an opportunity to get something back. Mr. Smith stated also that the National meeting over at Buffalo turned the money over to the Honey Producers' League to be used for their purpose.

MR. SMITH.—No, I didn't make that statement. But I heard the man to whom the money was turned over at Chicago say he was going to use it for that purpose.

THE PRESIDENT.—It was used to pay up the debts and clear up the accounts of the National, and there was very little left after that was done. The money paid in for membership, there was no money paid in at Buffalo to be diverted for other uses. There was a balance left over from the preceding year, together with the debts and expenses of the Buffalo meeting. The money was turned over to the American Honey Producers' League and that was used chiefly to pay the debts of the old National, there was very little left of it. They didn't kill the National at Buffalo. Someone has said, it has been dead two or three years and didn't know it. We just buried it over there. My mind hasn't been big enough to hold all the points Mr. Smith made. But two or three

statements he made were not quite correct. I believe Mr. Smith will be with us when he knows all the facts and reads them clearly and correctly.,

MR. SMITH.—I believe I have a right after the chairman has said what he did say, to explain why I made the remark I did. There is only about two hundred dollars in the treasury, so the treasurer informed me at the meeting at the LaSalle Hotel, and it provided that the secretary of the National Association, Mr. Justice—they elected him secretary of the National Association—Mr. Justice said he was going to send out notices to all of the associations in the United States to prominent beekeepers, and mentioned enough so that I knew there would be a good part of it spent for postage if he kept his word, and outside of the meeting, talking with some of the officers of the association, the officers told him to go ahead and hire a stenographer and use the National Association money to pay that stenographer. How long would it take for them to use up that two hundred dollars? That was to call the meeting at Kansas City.

I haven't the slightest objection to the Honey Producers' League. I don't want you to get that idea, but what is the use of me joining it? What is the use of most of the people that I know here joining? That is a league for men who produce honey by the tons, who have got to market it by the ton. The time may come when I won't be able to produce any honey, then I will want to send to some man in Michigan that lives where bees gather just the kind of honey I want, and get it. And I believe as a nation, the whole nation is better off if we will keep the honey segregated and not make a standard brand of it. I am not criticising Root's, because it was a money-making proposition for Root to standardize their honey. They can buy it at wholesale and give a certain class of people just what they want. I dont' want the Airline honey, and I don't want Root's to become so big that nobody can sell anything but Airline honey, and I don't want the Honey Producers League to get that large, but they can advertise honey all they please. But a good many of their arguments are fallacious to me. They have got the honey selling league in California, one of the best that there is in the world. It isn't equaled anywhere in the world, and I don't believe the people of California are eating ten pounds of honey per capita per annum, and they are going to spend twenty-five thousand dollars to sell their honey in Chicago. Why don't they advertise their honey there and save the freight rates? If advertising will sell honey, let them sell their honey on the Pacific Coast.

THE PRESIDENT.—I think of one or two other statements of Mr. Smith. I have attended every meeting of the American Honey Producers' League, and I have never yet heard of any proposition to standardize honey, to mix it or blend it.

MR. SMITH.—We heard it today.

A MEMBER.—He talks about standardization. I am sure no man has ever heard of the American Honey Producers' League selling a single pound of honey blended or reblended, because the aim is not and never could be a selling organization. It could advertise the uses of honey and indirectly sell the honey of every constituent member of the or-

ganization. A committee on standardization merely means a committee to standardize on the idea of grades. Every state and beekeeper having its own standard, the American Honey Producers' League felt that we might have a standardization of grading honey, which is altogether different from blending or standardizing honey (applause).

MR. STEWART.—What better is this new organization than the old?

THE PRESIDENT.—I believe I will call on Mr. LeStourgeon to answer that question.

MR. LESTOURGEON.—The members of the old National thought it was better and voted to dissolve the committee to carry on the work. I do not know whether or not it is better because that is a question of personal opinion. If one wants an organization that merely meets once or twice a year to read papers and discuss academic beekeeping problems, the old National is a lot better than this one. If one wants a business organization to look after the business interests of beekeeping, then this one is surely better. It is a matter of opinion.

THE PRESIDENT.—The National Association as I viewed it was merely a migratory local association. If there was a Chicago meeting the people surrounding that territory would attend. Next year it would be at Denver, and a lot of beekeepers around Denver would attend. We couldn't have any fixed policy. It was not a business organization. The secretary and officers were on the job only three days in the year.

It is proposed in this new association to have a permanent secretary to be on the job every day in the year, to attend to the business of the association. It is not proposed to sell honey or dump honey into Chicago, the purpose is rather the opposite, to bring about distribution and divert the honey away from the centers where the market is apt to be glutted. I think one of the prime purposes of the association is to divert the honey to places where there is a scarcity, not bring about a congestion in large cities. I believe Mr. Smith will be with us when he studies this proposition thoroughly. I wish he could come to our meetings we held this morning and yesterday and got the facts in this respect and conversed with the members there, because I am sure every one in that organization is not working for selfish purposes, but working for the good of the whole organization and for the beekeepers of the United States. I would like to hear from others on this. I don't want to monopolize the talk in regard to this, I think somebody else ought to take part in it.

MR. HENNIGER.—Mr. President, I am here to represent the State of Utah, to join this American Honey Producers' League. Now, it isn't my idea that this association is to affect the old organization of any kind, only to support them and to help them, and they help the league. I don't think it will in any way interfere with the old organizations. We do not intend so, and the money we are raising for this league is voluntarily contributed so far. We haven't taken any money out of the treasury of the State association. I don't know just what the American Honey Producers' League is going to do and can do. Nobody knows that. But there are things that can be done. We know there are many things that can be accomplished, and we should have a national association to help each state. That is my idea. We are ready to put in our

hundred dollars from Utah. We have a small association so far. If we need two or three or four or five hundred, we will put it in. That is the way I think our people are ready to do. I took up with our executive committee the joining of this association and coming to Chicago or sending someone.

The first thing one of our big men who numbers his swarms by the thousands wanted to know, who is at the head of the organization. I told him I would send him a copy of the Country Gentleman about two years back, where a man from Salt Lake City had gone all the way to Texas to write up the Texas Association, that the president of this league had organized our association in Texas, and what he had accomplished. The Country Gentleman took about two or three pages writing up that association and classing it as one of the most successfully conducted associations in the United States. As soon as I told Mr. Miller this, he said, put my name down for ten dollars, and if you need more let me know. And another man who gave me five dollars called me by phone in the southern part of the state and said, let me know if you need any more money.

We don't know all the good that is being accomplished but we want to help, he said. I believe every state association at least should get back of this, back it up and do what we can, because we need this association and we need its help in a great many ways.

We have a problem in the west that you haven't here. We have carload after carload of honey that is not sold. One of our beekeepers took a carload of honey over in Kansas, and dumped it down there, but he didn't know. But if our National Association says at some place there is not much honey, you can sell a carload there and at different other places, the National Association or League should be a clearing house where we can get information and help each other and not let it interfere with our state, county or other organization (applause).

Mr. Hawkins.—The National Beekeeping Association isn't in existence any longer, and I think the league is the only association we have at the present time that we can go into. It is the medium we are offered to get this thing over.

Remarks about whether or not this association would be any better than the National reminds me of something I heard last night, of two Irishmen who went to the undertaker's to see a friend who had passed away. Pat saw Mike laugh, and he said, Mike, this is an awful place to laugh, what are you laughing at? He said, "I am laughing at that," pointing to the body of the friend. What are you laughing at the corpse for? He said, "You knew Dinny, didn't you?" Yes. "You knew he didn't believe in Heaven or Hell?" Then, he says, "he is all dressed up and no place to go" (laughter).

The President.—What further have we?

Mr. MacNeill.—Mr. President, I would like to have our treasurer or president state whether the dues would need to be increased in order for us to go into this league. We have heard a great deal about the American Honey Producers' League, and we have heard a great deal about the league of nations. I am in favor of both of them. One of the things we heard about the League of Nations was that there was no

way to get out if we get in. I haven't heard how we are going to get out of this if we get in and don't like it.

MR. LESTURGEON.—I think our friend has raised a point least clear in the minds of the beekeepers. First there is no Article 10 in the American Honey Producers' League, and there is a definite door out of which to go when you are ready to go. In fact, there are two doors, one out of which you go of your own volition, and one out of which you may be kicked. In order to get in, the constitution requires that a state or regional organization that desires to join the league must pay into the treasury of the league a minimum charge of one hundred dollars. It also says that it must pay into the treasury a charge amounting to one dollar for each member. That was an apparent contradiction, and it was done for this reason, that nearly all of the state organizations are built around membership fees, fifty cents, seventy-five or a dollar and a half. It is obvious you can't take seventy-five cents and pay out a dollar of it. But the organization desiring to join this league can raise one hundred dollars and therefore immediately become a member of the league. The period in which they would carry that association as a member of the league would be as long as that was the maximum amount that that state association could pay into the league. It would give the league an opportunity to prove whether or not it could be of service and give the state an idea whether or not it should continue its membership. If you decided to do so, you would contribute more than the one hundred dollars and you would amend your by-laws in your various state and regional associations to make your membership two and a half dollars, enough to cover your own expense and one hundred dollars to send to the league, and after the sending of the third year your remittance to the league your membership fee would be a dollar for every member in the organization.

I dont' know how many members there are in the Chicago Northwestern Association. I will guess that there are 500, that many members of this association represented here by a group of sixty or eighty. A minority meet at your annual meeting and determine whether or not this association shall become a member of the American Honey Producers' League. You are a hopeless minority. In some cases one-tenth of the membership visit the State Association meeting. Suppose this body now decided that we want to join this league. How may we join it? We must raise one hundred dollars. In Michigan, the gentlemen present said we will have to have one hundred dollars. We have eight hundred members, we want a voting delegate to help out in the work of the league. I have got five dollars for this work, who else has got five dollars? The secretary took down the names of some, and in ten minutes Michigan had joined the league. Michigan proposed, and it has to lay over one year, that next year they will raise the dues of the state association in Michigan to a sum sufficient to cover the activities of the state association and have a dollar to pay for every member. If their membership shrinks from eight hundred to three hundred, they are so much better off.

We will take Wisconsin with about nine hundred or more nominal members with a small membership fee. It is obvious that the state of

Wisconsin can't join the league and send a check immediately for nine hundred dollars, but they can join for one hundred dollars and become just as much a factor in the American Honey Producers' League as the California Honey Producers has been or the State of New York or State of Montana that are already members of the league, and the moment they have paid their one hundred dollars they can elect a delegate who has just as much power and vote, as anyone there, and whenever the state raises its dues sufficiently to pay in a dollar for each man I believe they will want it.

This league is going to give you service. The men who proposed it think it can. I know it can, because I know the kind of service our western associations are giving us and I believe it can give you more than the amount you paid into it. Don't let your delegate attend the meetings for two successive years, for the league will ask you to elect another delegate, because he is out under the constitution, and you will have to elect another man or lose your membership that way. Any time you want to, you can walk out by not paying one hundred dollars next time, and if you can pay more than one hundred dollars, do it by all means, because you are helping in the work of cooperation. But you here can raise one hundred dollars if you want to. If you don't want to, put it over till next year, because the league won't die, it is going to live. This is the age of organized cooperation, and united, will amount to something (applause).

THE PRESIDENT.—Any further discussion?

MR. SMITH.—How many members did we have last year, paid?

THE SECRETARY.—Seventy-three.

MR. HAWKINS.—I for one if the Chicago-Northwestern wants to go into this association am willing to put up five dollars.

A MEMBER.—Find out how much it is going to take to raise the dues to cover that.

THE PRESIDENT.—I think, gentlemen, the question is now whether or not we shall join. The question of finances I think isn't the question. We can get the money if we decide to join the association. I am willing to do my share. Are you ready for the question?

MR. SMITH.—I raise to a point of order. I ask for a roll call.

MR. WHEELER.—I second it.

THE PRESIDENT.—It has been moved and seconded that there be a roll call.

Whereupon the motion was unanimously carried.

THE PRESIDENT.—We will give you five minutes to pay 1921 dues.

Whereupon a roll call was taken.

MR. FRED MILLER.—I voted no. You can make it unanimous if you want to.

THE SECRETARY.—The vote stands thirty-one to one.

MR. HAAN.—Mr. President, I move we make this vote a unanimous vote.

THE PRESIDENT.—I believe there was one who voted no. Do you move to make this vote unanimous?

MR. HAAN.—Yes.

A MEMBER.—Second the motion.

THE PRESIDENT.—It has been moved and seconded that the vote be made unanimous in favor of joining the league.

Which motion was unanimously carried.

THE PRESIDENT.—The next question we have to consider is the question of finance. Has any one any questions or motions to make in regard to financing the expenses of the delegates? Shall we take this up in voluntary contributions, or how shall this be handled? I would like to have this considered before the delegate is named.

MR. HAAN.—Mr. President, couldn't this be arranged so that by assessing each member a certain amount of the money necessary to send this delegate to a convention, and having them pay this to the secretary later on.

A MEMBER.—Second that.

THE PRESIDENT.—You have heard the motion and second, that the expense of the delegate be assessed to the membership after the expenses have ben incurrd.

MR. HAWKINS.—Isn't it going to cost something to make the collections?

THE PRESIDENT.—It would be better if we could get a reasonable amount today, and then whatever balance is left over, if any, let it go into the general fund.

MR. YOST.—Is there sufficient funds to take care of the expenditures of the delegate? If there is, I would suggest the expense of the delegate be paid and charged, and that at the next meting of the Northwestern there should be a settlement made. That would eliminate bookkeeping.

THE PRESIDENT.—There is not enough.

MR. GILL.—It seems to be unusual to take a collection for expenses if you don't know what they will be.

THE PRESIDENT.—Last year we passed the hat, I believe, and the money was found here on the table after the meeting was over. Another way this could be handled would be to allow the delegate to pay the expense and add enough to our membership fees next year to cover it.

MR. HAAN.—Mr. Chairman, in sending a delegate from this organization to that convention we would all receive benefit, and in as much as every member of this organization will be benefitted, I don't think it would be just right to pass the hat around to a few of the members to defray the expenses of the delegate to this convention. I think it would be better to have every member of the organization assist so much, enough to cover the expenses of even mailing expenses and otherwise, and also get enough money to go for a delegate. Then if we find we have got to raise the dues to meet the expenses in the future, let us raise our dues. We expect to receive benefits in accordance with the money that we spend. We can't expect something for nothing, and in order to get the benefit we must put our hands in our pocket a little and do something.

I think every member of the organization should also be willing to do his share to benefit any member in the organization. I think it would be better if we assessed this equally on all the membership, without the collection.

THE PREIDENT.—You still favor the motion that was made?

MR. HAAN.—Yes.

THE PRESIDENT.—You have heard the motion and second.

MR. BULL.—If this isn't worth a few dollars, why do we spend railroad fare to come in here? Why waste our time and quibble over a dollar and a half? Let us make it enough to have some money in the treasury so we can do something.

A MEMBER.—Let us make it five dollars a year for each member, then you can give a good time going out and seeing a show, or something. They always have a good time at other conventions, a banquet or something like that. Make it five or ten dollars a year.

THE SECRETARY.—Five dollars a year is not too much.

THE PRESIDENT.—There is a motion before us, we better put that first. Mr. Haan's motion was to first find out how much the expense will be, and then assess it to the various members and get them to pay it later. Those in favor of that proposition signify it by saying aye. It is unanimous. The collection of this money will involve considerable expense and labor on the part of the secretary.

THE SECRETARY.—Let them be assessed immediately. I will make a motion that the dues of this association be five dollars.

MR. STEWART.—I second that motion.

THE SECRETARY.—You that have now paid in dues and do not wish to pay the other $3.50, we will refund their money, and the others will start an association that is going to amount to something.

MR. WHEELER.—What about those that have paid?

THE SECRETARY.—They can give me three and a half dollars or I will give them a dollar and a half and they will not be members.

MR. GILL.—Then your vote on the league is invalidated. There is only one member that voted no.

MR. HAWKINS.—I think by tomorrow you will have some pretty definite information as to where this meeting will be held. If you postpone this assessment till tomorrow, I think we will be able to know where the meeting will be held. I believe it will be named by tomorrow. In that way, you can have a little more definite information as to the place of the meeting.

THE PRESIDENT.—The question now before us is to raise the fees to five dollars.

MR. HAAN.—I rise to a point of order on that. I think that motion ought to be as a substitute, either an amendment or substitute to the motion I made. My motion wasn't put before the house at all, so you are taking Mr. Bull's motion as mine.

MR. HAWKINS.—Isn't the dollar and a half specifically named in the constitution of the Chicago-Northwestern as the dues?

THE SECRETARY.—No, sir. The dues of the Chicago-Northwestern has always been one dollar and this fifty cents addition went to the State.

MR. HAWKINS.—You will have to look that up.

THE SECRETARY.—Has anybody got a copy of that? I think the amount of the dues has been fixed at the annual meeting. I don't think it is in the constitution.

MR. HAWKINS.—I just wanted to make sure on that.

THE PRESIDENT.—The motion before the house is to raise the dues of the Chicago-Northwestern Beekeepers' Association from a dollar and a half to five dollars. Are you ready for the question?

The motion was unanimously carried.

THE PRESIDENT.—The next question to be taken up by this association is the question of joining the Illinois State Association. It has been customary to join the Illinois State Association and give them part of our money; whether we have gotten anything back from this or not, I will leave it to you to decide. What is your pleasure?

MR. KILDOW.—There was a remark made that we never get anything from the State association. The State association has always paid your stenographer and your expenses on a good many things. If the State hasn't done you any good, by all means stay out and pay your own stenographer.

THE PRESIDENT.—I would like to ask in what respect has the State benefitted the association, further than to furnish the book?

MR. KILDOW.—That is a good deal, and if it hasn't done you any good, I wouldn't bother about joining it. Then you can get your own stenographer and pay her and go ahead.

MR. GILL.—If you had to go to Springfield to attend that convention it would cost you considerably more than fifty cents. You get practically everything that happen in that meeting.

MR. SMITH.—I would like to know what this association has furnished us outside of the book, which the State has furnished. It seems to me all that is of any particular value that we get here, came from the State association, except our meeting here for a social meeting.

THE SECRETARY.—Mr. President, it only costs fifty cents to join the State, and as our dues are five dollars we can join or not join. It is up to you to settle the question.

MR. KILDOW.—I am just answering his remark.

THE PRESIDENT.—One objection that has been raised to joining the State is that this association covers a number of states. It is what is known as a regional association. The State might join us, but for this more important association to join the State it seems to me is not just the proper thing. The members of this association come from various states, and it seems to me a more important association than the State association. Quite a number, perhaps half of our membership, is from out side the State of Illinois. The question before us is whether or not we shall continue to affiliate with the Illinois State Association.

MR. YOST.—It seems to me from the fact that we have decided to affiliate with the American Honey Producers' League, which really is a National affair, it would eliminate us from any consideration of any other association. I move we affiliate only with the Honey Producers' League.

THE SECRETARY.—I second that motion.

THE PRESIDENT.—It has been moved and seconded that we do not affiliate with any association other than the American Honey Producers' League.

MR. EVERETT.—I don't see why we are trying to make a change. We have always been pleased to get this book gratis from Springfield. They have all the minutes there, and many good points of reference that have been given in the different beekeepers' convention here and at Springfield. I for my part would rather say that we join again as we have done in the past.

MR. KILDOW.—You will have to pay your own stenographer and your postage.

THE SECRETARY.—We do not get any postage from the Illinois State.

MR. KILDOW.—You would have to pay your stenographer, and your members all get the book.

THE SECRETARY.—That is all they get.

MR. KILDOW.—What more do you want for your money?

THE PRESIDENT.—For the information of some who have not previously been members I will say the Illinois State Association has furnished a stenographer to take the notes of this convention, and has put them in printed form in a book, together with the report of the Illinois State Association, and that has been furnished free of charge to the members of this association. That is what we get back from the amount of money we send down there, fifty cents per member.

MR. KILDOW.—You paid fifty cents the last time, and the books cost over a dollar to send them to every one of the members.

MR. ELLIS.—I know many joined to get that book. Many a man hears good points but does not remember all that happened, and in that book you have everything, and I learn more out of that year book than I have learned out of many other books, and so that book alone is worth to me more than a dollar. Every member of this association gets that book and I think we are standing in our own light if we refuse that.

MR. KILDOW.—As far as I am concerned individually I do not care a snap, but I hate to see you kick anything out that is doing you good.

THE PRESIDENT.—It depends largely on how much we value the contents of that book. Some of us think a great deal of it, and there are others who care very little for it. The question is whether we shall join and get that book with the stenographic report of our proceedings, or not. The motion is that we do not join. It is up to you to vote whichever way you think it should go.

MR. HAAN.—I am not strictly in favor of pulling away from the Illinois State Beekeepers' Association myself, principally on account of that book. There are times when I think over things I have heard here at this convention, that we have puzzled our minds over a little bit, and then we think better, and we get that and refer to it, and we find things there that probably are very interesting to us. I know I have looked over my book several times. I remember one instance of a wintering problem I read over. It wasn't by this beekeeping association, it was by the Illinois State, and it interested me quite a little, and there is no doubt that the book is interesting to anybody that will take the interest to read it. It is instructive as well as interesting. For that little book alone, and the little half dollar it costs to join, I don't think I would

begrudge that half dollar for the sake of the book, because there is quite a little information contained in it.

THE PRESIDENT.—There will be no harm as far as I can see in joining that association if we value the book sufficiently to pay our fifty cents.

THE SECRETARY.—The question is this, if this association does not join the Illinois State, then the Illinois State report will not contain the report of our meeting.

MR. ELLIS.—It seems to me we are standing in our own light. We can have our doings published without any cost you might say, and we refuse if we say we won't join the State association. I don't see why we should do that.

THE PRESIDENT.—There is the question of whether or not it would invalidate our membership in the league. It is a case of a large association being joined by a smaller and less important association. This is an association of four or five states, and to join a state association which consists of only local members, they certainly ought to join us.

MR. HAAN.—Is there anything in the constitution of the league which is against us doing anything of that kind, continuing on with the State Beekeepers' Association? Then why should we worry about the State? We say we don't know but what it might interfere with us in joining the Honey Producers' League if we join the State association, that is the way I understood you.

THE PRESIDENT.—The question as it stands now is that we do not join. Are you ready for the question?

THE SECRETARY.—If you want, you can lay it on the table till tomorrow.

THE PRESIDENT.—All in favor of not joining the Illinois State Association please signify it by the usual sign, aye, those opposed, no. We will have a standing vote. Those in favor of not joining—7. Those in favor—16. The motion is lost. It is understood we are to join the association.

Whereupon the meeting was adjourned till Monday evening, December 6th, at eight o'clock p. m.

MONDAY EVENING SESSION.

THE PRESIDENT.—The meeting will come to order. We will hear from Mr. S. B. Fracker, state entomologist of Wisconsin. Mr. Fracker (applause).

MR. FRACKER.—Mr. President, ladies and gentlemen, when the Secretary of your association was so flattering as to ask me to discuss the inspection system in Wisconsin, I did not feel it was so much a compliment to the society as a curiosity which has been aroused and is being aroused by every new experiment in apiary inspection.

Apiary inspection is a proposition which has been tried in all forms. Every sort of solution has been suggested and tried, applying to both American foul brood and European foul brood. It seems we have every position which has been rung on the different methods that could be

tried out to see whether it is practicable to control the diseases of bees on a state-wide basis.

The first essential in connection with any campaign for the benefit of the producer is that it shall be supported and have the backing of the producer himself. Possibly this isn't the logical place to introduce that, but it seems to me that that is the fundamental factor in the success of any campaign, that that campaign shall not be imposed from the outside or from above, but shall be worked out by the producer himself, and supported by him throughout the entire campaign.

It appears that in Wisconsin we are particularly fortunate along those lines. The State Beekeepers' Association is supporting the apiary inspection work in every way, notwithstanding little delays and mistakes and inconveniences which must arise in case of the inauguration of any extensive campaign.

As an indication of the support from the association we might mention the fact that whereas the State Department of Agriculture has already submitted a budget requesting that their appropriation for this work this coming season be doubled, that the State beekeepers not being satisfied with that have passed a resolution requesting the legislature to triple the appropriation. At the same time about twelve committees have passed resolutions for two successive years that work be undertaken in their respective counties. We feel consequently that if the primary requisite to the success of an inspection campaign is the support of the man who is affected, that we certainly ought to succeed in Wisconsin, if our policy is right.

Now let us take up for a moment an annual problem that is presented in the control of bee diseases. In order to do this it is necessary first to distinguish the two diseases in their symptoms, that is to distinguish them not as the beekeeper does, but to point out their different points as they affect a state-wide campaign.

We will take up American foul brood first. Point No. 1. The outstanding characteristic that makes it necessary to undertake some kind of a campaign for its control is the fact that it is contagious. That point needs no discussion. 2. That it can be distributed by the beekeeper moving bees and used bee supplies. This of course is the means by which it has been distributed all over the United States. We have charts that we have worked out for individual localities, so that the beekeeper is also primary inspector in limited localities. The beekeeper has only himself to blame for the fact that American foul brood is now scattered from one end of the United States to the other. The amount of disease varies in the different states, but probably no state is entirely without it. In Wisconsin we know of forty-two counties in which it is present, varying down to approximately two per cent of the apiaries up to say forty-five or fifty per cent.

The third point is that American foul brood can at least be distributed by the bees for short distances through robbing. This has been given sufficient attention. It is hardly necessary to develop it.

The fourth point is that American foul brood is distributed by the sale and distribution of infected honey primarily into large honey markets, and through the fact that the housewife and the companies who

receive honey cans expose the cans after they are partially emptied, to bees.

The fifth point is that American foul brood if uncontrolled is absolutely fatal to the industry. This can be pointed out in a number of Wisconsin counties which have every reason to be fine beekeeping counties, but where the industry has been entirely drivn out by bee disease. Washington county, west of Lynn, is one of them, Dodge county is another in which beekeeping is no longer profitable, owing to the fact that bee diseases are so numerous that the profit is entirely lost. The slogan we have used in some of the displays, including those at the State Fair, is this, American foul brood first takes the beekeepers' profit then kills his bees. In most counties it has gotten to the stage where it takes his profits.

The sixth and last point in connection with American foul brood is that the individual beekeeper is unable as a matter of practice to bring his bees to such a condition that they can resist the disease. In other words there is no strain of bees which can resist American foul brood, and there is no condition of a colony which will enable them to prevent loss from occurring, which will enable them to throw off the effects of American foul brood in fact.

If we take these points we have the basis and foundation upon which any projected campaign or method for the state-wide control of American foul brood must be based. Look for a moment at European foul brood. We can outline it in somewhat the same way, although the points will be a little different. In the first place European foul brood is contagious in the same way that American foul brood is. In the second place, it is probably at least distributed by the beekeeper who has dead bees, and by shipments of honey, very widely distributed, although not uniformly. The reason that the word "probably" is inserted in there is to cover the ignorance of all workers on bee diseases, as to the details of distribution of European foul brood in limited localities. Unquestionably, it has been distributed from state to state by the shipment of bees in the same way as American.

The third point is that the beekeeper can maintain his colonies in such a condition and can maintain strains of bees so that loss is a negligible factor. In other words European foul brood can be controlled by the individual beekeeper, whereas American can't.

The fourth point, and one which is often left out in discussions of this kind, is this: that European foul brood cannot be eradicated from an apiary by any means now known. I am using the word eradicate in its literal sense, taken out completely, root and branch, eliminated so that it does not return for if it does return the following spring it has not been eradicated. In other words treatment can be applied to European foul brood so that it will disappear this season, or you may see year after year one or two cells by no means eliminated from that apiary, and thus eliminating an important factory in the one success in beekeeping as now known.

Here is one of these foundation points, the seventh mentioned in connection with the amendment and that the entire policy in Wisconsin has been based. We might glance for a moment at the possible solu-

tions. In the case of European foul brood it is conceivable at least that we could undertake a policy of preventing the transportation of diseased bee supplies, attempting to clean the state or the United States county by county through area clean-up campaign and the regulation of transportation.

However, the third and fourth points, particularly the fourth, that no means of eradication prevents us from undertaking the area clean-up campaign, and the third point that the beekeeper can provide for resistance and protection of his own apiary, prevents us from an attempt at regulating transportation. The only conceivable other solution of that problem in the present state of our knowledge until some method of sanitation is worked out so far as European foul brood can be kept out completely, is the educational campaign to which the European foul brood campaigns are now practically confined.

If we study American foul brood we find that five or six different attempts have been made for controlling the disease on a large scale by different states and at different times. One that is said to be most popular now is that of education, that is the purely educational means, attempting to get into the hands of every beekeeper the means of control of American foul brood, and hoping that he will apply treatment when the bees become infected. "Every beekeeper his own inspector" is an excellent slogan and is the basis of the educational method of controlling American foul brood. That is not being advocated in its entirety by any state or anyone familiar with this work as far as we know at the present time. In other words there is a number of cases being associated to some extent, although that association is sometimes rather carefully concealed with some legal measures.

We then have the second possibility as to means of controlling American foul brood, education at the basis with legal application is necessary, but the legal application being applied only when it is absolutely necessary and never being emphasized.

Another method that has been tried for a great number of years in many parts of the United States is that of astringent law, but the inspection depending upon the application of the beekeeper himself. In other words a state inspector who is available, a man who suspects foul brood in his neighborhood, calls him in, and five or six apiaries immediately surrounding the applicant are inspected and treatment applied if found necessary.

This is the method which has been tried throughout the United States probably by every state. I think it was the central method in Wisconsin for approximately twenty years.

The fourth possibility consists of an area clean-up campaign in which an attempt is made not to cover the entire state at one time but to work out in some particular centers a policy which will ultimately free the state completely from disease. This involves the hunting out of every individual apiary, compulsory treatment either by the beekeeper or by the inspector, and logically it also involves the regulation of transportation because it is obvious as a mere mathematical or geometrical proposition that if we clean up a particular area, say a county or half a county, at great expense and free it completely from disease, that we

cannot keep it free from disease unless we prevent the introduction of new infected material. Stated that way, it is apparent that the two propositions, an area clean-up campaign and a regulation of the transportation of bees and bee supplies, used bee supplies, must go hand and hand.

There are two forms of American foul brood control under a statewide scale, which I have been wondering exactly how to describe. The most obvious way is to say that one of them consists of education under the guise of law and the other consists of law under the guise of education. But the meaning of those two terms is not apparent at all. There is one neighboring state at the present time which may be said to be in fact trying out legal methods under the name of education, that is it is held up to us as an example of purely educational methods, an apiary inspection law without teeth. I was talking to a former local inspector of that state recently, and he tells me they have undertaken an area clean-up campaign in one county in that way. Upon investigation I find the inspectors actually and as a matter of practice let it be understood in that county that they had the right to inspect apiaries whether the beekeeper desired them to or not, which is the foundation stone of a legally enforced area clean-up campaign, and second that they induced the beekeepers to believe that they had to treat whether they wished to or not. It is impossible to say a campaign of that kind is in any sense an educational campaign, and if the inspectors are merely bluffing as to the legal basis on which they are working, it is all right only so long as they get away with it.

The other method, which is almost the opposite, of that, education under the guise of law, is one that I referred to a few minutes ago as the second possible method. It is one in which the apiary inspector is actually a law officer, that is he has all the powers of the law officer but he does nothing but education. That has been also true in a great many states and for long periods of time, decades at a time. The two methods really should not be confused because if a law officer lets it be known that he is not going to enforce that law and it is generally understood that he is simply helping the beekeepers if he never prosecutes and never burns a diseased colony no matter how backward the owner may be about treating it, then he is simply applying an educational method under the guise of law.

Taking up these different methods, the one which has been adopted in Wisconsin clearly comes under the fourth. In other words it is avowedly and on the surface a campaign including the cleaning up of areas township by township, county by county and eventually with the expectation of covering large areas of the state and included with that is the provision for the moving of bees and used bee material into a new and clean territory and into territory which has already been cleaned.

These two propositions, the area clean-up and the regulation of transportation, are obviously entirely different propositions. While they are tied up with each other and to some extent may be carried on by the same man, in Wisconsin they are carried on by different men, by a different force. We have one staff organized in one way and secured in one way for handling an area clean-up method of foul brood control

going into those counties which have been chosen on account of the presence of disease and support of the beekeepers without regard to the disease situation in other parts of the state; and another staff entirely, which doesn't spend nearly so much time, is concerned almost wholly with the transportation of bees and used bee supplies. Taking up first the methods used in connection with area clean-up campaign, the number of inspectors, etc., the amount of time it takes, and the cost, and that kind of thing.

We have been working on the five thousand dollar appropriation in Wisconsin, of which some must go for salary and some clerical assistance. The average cost of inspecting an apiary varies from three to four dollars and twenty-five cents, where the inspection is made on a large scale, the inspectors traveling either singly or in pairs, preferably one full time inspector with a local man visit every apiary in the county as far as they can find them, and they check that information in two ways. Every man that they visit is asked for the names of the beekeepers in his neighborhood. The beekeepers are so numerous in most of the territory in which our inspectors have been working so far, that it is practically necessary to cover every foot of road in the country, consequently eventually even if the neighbors do not know that bees are there, the inspector will pass them. The result is the number we miss, which is indicated by the number found the second time through the county, is apparently quite small. In Milwaukee county the area clean-up campaign in 1919 resulted in a great deal of attention to this work and a good deal of gossip and conversation about it, and the result was there is a total of three apiaries, I think, found in 1920 which had not been discovered in 1919.

So far as a staff is concerned, the beekeepers themselves feel that they can make so much more money at their own work that we have found it impracticable to use them on the era clean-up campaign, which requires every minute of every day. Part of the time men work twelve hours a day, in order to get along as rapidly as possible and allow for the rainy season, consequently the primary source from which we secure the men who are engaging in area clean-up campaigns is educational institutions, instructors if we can get them, and to some extent students. We try not to put a student in charge of one of these crews of two men if we can help it. So far we have been very successful in getting as instructors men who have had experience as county agents, and the more mature men, to handle that work. If possible one of these men works with a county inspector and county beekeeper at the same time. This has two advantages. Both sides of the combination have advantages, in fact. On one side it keeps the local inspector from being the object of a considerable amount of invidual criticism which he would unquestionably be subject to if he was doing it alone. When a man is sent to his neighbors they immediately think he is trying to get something on them. We find that can be relieved to some extent by the presence of the stranger who is doing most of the inspection, then the local man does not get nearly so much blame and has none of the responsibility.

The general policy of inspection is to inspect every colony, apiary, every frame in every colony in the apiary, regardless of when disease is found. The inspector, if there is one case where American foul brood is found, gives notice to the beekeeper by a stamped, addressed card like this, which is divided in two sections. It reads something like this: Mr. John Smith, you are hereby notified that American foul brood has been found in (blank) colonies, etc., etc., and then in large letters, "BEES OR USED BEE SUPPLIES MUST NOT BE SOLD OR USED WITHOUT A PERMIT OF THIS DEPARTMENT." etc., etc.

The primary object of the card is not, as is generally supposed, to give us information. It does that, and it tells us whether the beekeeper tried to treat or not, but not all of them are returned, and the apiary is reinspected.

The primary object of the card is that the beekeeper shall have the card in front of him, stamped, something for him to do until he gets that treatment applied. In other words it is much more of a reminder than a notice, because it is something that he should send back. The reinspection is made as soon as it is practicable after the first inspection, never before two weeks, usually a month. We do not consider that the reinspection gives us any idea of the results of the treatment. We never say that an apiary has been cleaned up because the reinspection a month later shows the treatment has been applied. An apiary is listed and reported as clean once when a reinspection the following year shows it to be clean. The next year, going back into the same county, every infected apiary is reinspected and every apiary within a mile or half mile, depending on conditions in the county.

In a few cases where disease is rather widely distributed, it is necessary and desirable to reinspect every apiary in the county the second year, also in three years. No campaigns have been carried on for more than three successive years, so at the end of the time the place is checked off and left for the county inspector, who is inspecting, when he has opportunity.

In both of these counties the disease was reduced to not to exceed two colonies, and those two colonies treated before the county was left for the local inspector.

The next question is "what results have been secured from this method?" There is no one who can say off-hand in advance whether two, five or seventy-five per cent, or ninety-five per cent of the beekeepers would succeed in freeing their apiaries from disease the first season. The second treatment for American foul brood is comparatively complicated, especially considering the unfamiliarity that some keepers of bees have with apiaculture practice. It is said that one of our beekeepers on securing some bees in combless packages and having a beekeeper put them, on wrote into a bee journal a little later that all her combs had gotten wormy. She wanted to know what she could do for it. She said there was a worm curled up in the bottom of every cell. For beekeepers that are not further along than that, the treatment for American foul brood is a long ways ahead in their apiculture methods, consequently it is of interest to note, and something we have to watch very closely

to determine how long it takes to clean up an apiary, in other words what the average beekeeper does.

What are the results of sericus amount when the inspector does not treat? The results are rather definite. They show not what the bees will do or what the treatment or that particular means of sanitation will do, but they show the care of the beekeeper. In one pair of counties in which we made a special study, thirty-three per cent of the beekeepers succeeded in cleaning up American foul brood by the shaking treatment the first season, without its evident re-appearing. It was in the season of 1918, when the failure of a honey flow made treatment particularly difficult. Fifty per cent more succeeded in freeing their apiaries the second season, leaving approximately seventeen per cent, which showed disease this year, and which have of course been treated.

In Milwaukee County where the work was somewhat more successful, out of sixty-two apiaries treated in 1919, only twenty-one were found with disease this year. In Winnebago and Calumet counties fifty per cent of the beekeepers succeeded in freeing their apiaries the first year.

I presume I am talking to an audience of what is commonly known as big beekeepers, in other words they are not the owners of one and two colonies, consequently I feel I can be particularly frank in saying that the last man to clean up is the big beekeeper. Of these the last twenty-seven per cent include almost all the large beekeepers in the territory, especially if they have more than ten per cent of their colonies diseased.

In Calumet and Winnebago counties where I have been studying the figures within the last two weeks, I found each one of those who succeeded in cleaning up American foul brood as a result of the inspection of 1919 was one of the smaller beekeepers, and that every man who had more than twelve diseased colonies, which in all cases meant he had more than forty or fifty colonies of bees. Every one of those had at least one infected colony on his premises next year. One thing we sometimes hear, and that we ought not hear at the beekeepers' meeting, is the man who has fifty or seventy-five or one hundred colonies saying there is disease here. How can you expect me to keep free from disease when my neighbor who is a mile away has a couple of infected colonies over there. If he would study the figures we have, showing the results of apiary clean-up campaigns, I think we could convince him that probably the only reason his neighbor couldn't get rid of disease was because he maintained a colony or two of it all the time on his own premises.

The man with one or two colonies in most cases, in Wisconsin, has more to lose, for instance, from the big neighbor, than the big neighbor has to lose from the small neighbor. These are some of the interesting results of our large-scale sociological experiment on how the keeper of bees can learn a rather complicated, comparatively, method of treatment.

As was said before, the requirements in regard to the transportation of bees are handled in a different way. These yellow application blanks are sent to county agents, inspectors, officers of the county bee-

keepers' association, and as widely distributed throughout the state as possible. When anyone wishes to move bees or move out bee supplies, it is necessary for him to fill out one of these blanks. We sent out four hundred of these applications during the past season. This represents somewhere between eighty and ninety-five per cent of the numerous cases of transportation of bees or used bee supplies in the state. In about ninety per cent of them, the permit has been granted immediately. No inspection is made. The reason for that is this, that the applicant is a man who is moving colonies of bees not to exceed three or four miles, or he is moving from one part of a diseased county to another part of a diseased county, or some similar situation where we believe there is no possibility of transportation of disease.

The way our law reads in regard to that particular provision is that the inspector may refuse such permit whenever such refusal is necessary in his judgment to prevent the dissemmination of contagious disease of bees, or until he finds by inspection that they have no such disease.

In case there is to be an auction sale, which means of course that the bees and supplies will be distributed widely and generally, and that there is no limit as to the location where they may go, they are always inspected. In case the bees are to be moved interstate or inter-county, inspection arrangements are made. This only covers about ten per cent of the applications. The inspections are made quickly and without cost to the apiarist. We have been working up a staff of county apiary inspectors through the civil service commission. The county inspectors take civil service examination. First they are recommended by their county association, and if they pass the civil service, the highest one in the particular county who passes is named as county inspector. The application is then referred to the county inspector in case an inspection is necessary, and when the application is referred to him the permit is sent, so that when the inspector makes the inspection he leaves the permit, if he finds the apiary free from disease.

In starting a new proposition of this kind we have some difficulty in getting full information to the beekeepers at first. One question that comes up is, are the bees moved generally and widely without inspection certificates? If you find they are being moved, what do you do? As to the number being moved without any reference to the law, we can only judge from the reports that come in. We have sent memoranda during October to about two hundred correspondents in different parts of the state and asked them to list all the cases that they knew of the transportation of bees and used bee supplies in their neighborhood. The result was when we checked over the list about two or three per cent were found to be cases we didn't have on our records, where no permit had been secured.

As to what happens when we do run across cases where transportation has been made without any permit, so far we have been prosecuting only in cases where a disease was actually moved. It wasn't necessary to prove that the owner knew of disease. In fact we didn't prove in court that disease was present at all. That wasn't the question. The prosecution was made, the man was fined five dollars and

costs in each case, on the proof that he moved his bees and used bee supplies without a permit from the state inspector of apiaries or without an inspection certificate.

The policy of the State Department of Agriculture in all its lines of work is always to warn the defendant first and then in case of a second offense or in case there is any evidence of wilful neglect of the rights of his neighbors, to prosecute. Naturally under that general policy the number of prosecutions the first season has been very small. However, they have been successfully prosecuted, so that the beekeepers know the Department of Agriculture representing the other beekeepers in the state means business, that this is not an educational campaign under the guise of law, that it is a campaign to eliminate American foul brood absolutely from the counties in which we are working, and that it is a campaign to prevent the distribution of infected material from one place to another. I don't believe there is any question in the minds of any of the beekeepers who have come in contact with the law at all, that their neighbor beekeepers and the State Department of Agriculture and the county apiary inspectors and everyone concerned, means that the law shall be enforced exactly as it reads, and that it shall mean exactly what it says.

Possibly it is rather surprising that under these circumstances the counties seem to be enthusiastically back of the work. Not only do the laws appear somewhat drastic to beekeepers, but the governor's council in talking the thing over at the time the law was signed by the governor two years ago, stated it was just about as water-tight a law as there was on the statute books along any line. If the laws referring to the wet and dry problem were like the transportation requirements, the chances are there would be some difference in the degree of wetness there is in some parts of the United States.

The results have been sufficiently promising in the counties where it has been undertaken, primarily in the eastern part of the state. From Madison, the county seat of Dane county, there is from Dane county east to Lake Michigan north through the Rox River valley to the northern border of the state, is the group of counties in which work has already been begun. Three counties are gaps in the series. The object is to begin in that particular group of counties and work east and west first, pushing the disease, so to speak, into Lake Michigan. We are developing a line of counties there, from which we can attack in both directions.

As an illustration of the support that the work is receiving, the following counties have passed very insistent resolutions for the past two years, asking that the area clean-up campaigns be begun in their own counties, and individual requests have come from beekeepers in about six more counties. The way those counties feel about it may be illustrated by one little amusing incident. I understand one county passed resolutions that if the State Department of Agriculture was unable to put an area clean-up campaign on in their county by next season, that they would withdraw from the State association. The disease is so serious there, that the beekeepers feel that something drastic has to be done and they are willing to do their bit.

As to the progress which can be made under our funds, we are inspecting from nine hundred to a thousand colonies a year. We found in 1919, 352 infected apiaries containing 1,700 colonies; in 1920 instead of 352 we found 185 infected, although a good deal of new territory was undertaken, illustrating the reduction in the same disease in the territory where the work was being carried on for a second year. The number of diseased colonies was reduced from one year to the next, from 1777 to 747. In addition to the number of apiaries inspected, something over one hundred were inspected a second time on account of disease being found for the first time. Those in which disease was found and reinspections made included primarily those counties in which disease was found late toward the end of the season.

The principal attempts that are being made for the immediate future are efficiency experiments, attempts to determine whether we get the best results at the lowest cost, from having one inspector go out alone or having two go together, the means by which he has to travel, the treatment that he shall insist is given, and that kind of thing. In other words we feel that more than fifty per cent of the beekeepers ought to be able to clean up the first year. The fact that only fifty per cent of the beekeepers clean up the first year is a strong recommendation for the effectiveness of the shaking treatment rather than the reverse. It doesn't mean the shaking treatment is fifty per cent effective, it means the shaking treatment is one hundred per cent effective, and that fifty per cent of the beekeepers apply it properly. The mere fact that fifty per cent of the beekeepers can apply it successfully is a strong indication of the fact that treatment is really comparatively easy to give. However, we are anxious to raise that per cent. Different methods of giving the information or demonstrations of the treatments will be undertaken from time to time, in order to see whether we can develop means that will enable us to free an area from disease in two years instead of four, as it apparently now takes.

To sum up then, the foul brood method of Wisconsin consists of a combination of an area clean-up campaign and the regulation of transportation in which the work is done county by county and township by township, the work being continued in each locality until the locality is entirely free from disease as far as practicable. The work is under the immediate direction of Mr. McLeary. The full time inspectors have been six men chosen largely from educational institutions, and the apiary inspections are made by county inspectors on the request of the department, and consequently at the expense of the department. Thank you (applause).

MR. KINDIG.—I understood Dr. Fracker to say that in making an inspection of an apiary, that he inspects all the combs in each hive. Does that also cover an inspection of all extracted combs or all other combs that may be on the premises?

DR. FRACKER.—The inspectors do not go into the extracting combs. It does include other combs that may be on the premises.

MR. KING.—I would like to ask, where Dr. Fracker finds at the close of their work that there is a difference in the recurrence of dis-

ease in treated colonies, if there is a difference in comb honey or extracted honey?

DR. FRACKER.—I can't answer that question. We have no figures on it.

MR. KING.—Our experience is that there is a larger recurrence of disease in extracted honey than in comb honey.

DR. FRACKER.—Our work has been almost entirely in extracted honey.

QUESTION.—After the combs are taken off in the average extracted honey apiary you have no record of where the combs were, that you afterwards found diseased?

ANSWER.—The inspection is largely made at the time they are taken off. I can illustrate that by a case that came up. A large beekeeper, having in the neighborhood of two hundred and fifty colonies of bees, had purchased extracted honey in cans from some western state and thrown out his cans where bees had access to them. The result was somewhere in the neighborhood of seventy cases of disease in that yard, and it was distributed into some of his other yards in one season, which was enough of a blow to stagger anyone. The situation was still more complicated by the fact that when that was discovered or called to his attention, he had mixed them all up and he didn't know which of the seventy came from those colonies. He came up practically on his knees to Madison at the time of the State Beekeepers' Association and said that he had had experience with the disease, and knew he could treat it, but he was afraid of the inspector, he was afraid the inspector would insist on his destroying his whole set of supers. Of course, that wasn't the logical thing to do. He immediately became convinced that we were much more reasonable that he had supposed. The only thing that was done was the only thing that could be practically done, arrange for treatment, or destruction where necessary, of the infected combs, use all his supers if possible this season, and identify the infected supers that way.

Another large beekeeper in the northern part of the state became infected with disease five or six years ago, when he had seven hundred colonies. He tried that method somewhat more carelessly, he couldn't be convinced that the extra supers carry any infection. He treated, and this last season he had, and he has now finally become convinced, and this summer he melted up one thousand extracting combs because he applied almost the same thing that we have done in the case of the man in the southern part of the state, except he applied it so universally and successfully that he distributed disease throughout his apiary and was consequently subjected to a very serious loss.

MR. CAMPBELL.—In extracting I have always practiced the habit of placing the super back on the hive from which it came, with all the frames which came from that hive. It is a comparatively simple matter. With a lead pencil I number the super with the same number that I place on the hive or base. It is an equally simple matter to number the frame if it becomes necessary, in taking a frame from more than one super to place in the extractor. It is a very simple matter to keep track of it in this way, it doesn't require an appreciable amount of time

and it saves at least ninety per cent of the chance of infection. There is of course a slight chance of infection from the placing of a clean comb, supposedly, on a different foundation. The chance of infection is so slight that I never have personally experienced any difficulty therefrom. The numbering system will absolutely render it certain that you do not get back into the colony any frames which did not come from it. Another good result is that if that colony becomes diseased you can remove the frames from it without interfering with the rest of your apiary at all.

MR. MCLEARY.—I found two great difficulties among the beekeepers with foul brood, one is this: a beekeeper loves flowers and a beekeeper loves honey, and a beekeeper, some of them, love the ladies, but of all the things the beekeepers love it is old black comb. If you want to break their heart, tell them to melt up some old, black super comb. The man Dr. Fracker mentioned, if that man had taken our advice four years ago, he needn't have lost his apiaries, but he set up an argument with me that clean super combs wouldn't carry the disease, and he mixed his supers until he is practically out of the bee business, and if nothing happens you will see some pictures made in one of the bee journals by and bye, of stacks of empty frames, stacked up like small houses, and I will give you the number of thousands of pounds of beeswax that he is getting out of one hundred thousand combs, and the stacks of empty hives being scorched out at endless expense. It is hard to get beekeepers to believe that.

The other is this, that while they do love old black comb, they are afraid of the fire. It is so hard to get beekeepers to use fire. The more experience I have with it the more I believe the thing to do with foul brood colonies is to burn them up, throw coaloil over them and burn them up, hive, comb, honey, bees and all. There isn't one beekeeper in ten on the average that undertakes to fool with American foul brood but what scatters it. That is one of the reasons we have so much trouble with this recurrence all the time. It is the job of an expert, and the average beekeeper is not an expert. I am not talking about the little fellow who keeps four or five colonies, I am talking about these fellows that call themselves commercial beekeepers.

A MEMBER.—In case where a man had one hundred thousand combs scattered among seven hundred colonies of bees, was the inspection department also experimenting?

ANSWER.—It was not. He was not in an area clean-up territory and no work was being done in his neighborhood. The disease had gone on for three years, I think, before the inspection department discovered it. He was in a different locality entirely, from where most of the work is being done, up in the northwestern part of the State.

THE PRESIDENT.—I have a question I would like to ask Mr. Fracker, what is the best disposition of those empty cans that are being discarded, the sixty-pound cans not in shape to be used again, what is the best way to get rid of them? We can't burn them up, we can't bury them. What should we do with them?

DR. FRACKER.—We haven't undertaken that problem. I would be glad to hear suggestions. There is one loophole that was just hinted

at in the control of American foul brood, which we are not plugging at all, which we do not know any way to plug, and that is this same problem you speak of.

We expect in Milwaukee county that the area clean-up will not be permanent on account of the large number of cans that are undoubtedly thrown out, and we feel in the same position that your question indicated you do, that at the present time we are not able to undertake that proposition not only for the reason you suggest, that it is difficult to dispose of them, for the reason that they are not usually in the hands of beekeepers, and we feel that even a publicity campaign, requesting the housewives and companies that handle honey dispose of them properly, might result in very serious disadvantage to the sale of honey. While we can publish broadcast the fact that bees are diseased, it doesn't affect the sale of honey at all. The fact that honey carries disease germs we would not want to get to the housewife, and in Wisconsin we are not ready to undertake it.

THE PRESIDENT.—One suggestion has been that we fill the cans up with water and let them stand for a considerable time and then let the water run out.

MR. KINDIG.—So far I have always lived in a house with a big enough door in the furnace to get a sixty-pound honey can in, and those cans are saved in the cellar until there is a real fire in the furnace, and then throw the cans in. If you leave it there until time to fire the furnace next time, I will guarantee that anything inflammable will be burned up and the tin melted off the can. I don't have many of them, but I have a certain number of cans every year, and when they come out of the furnace they move out on the ash pile and the garbage man gets them.

MR. GILL.—I am under the impression that if a tin is put in a boiler and thoroughly boiled out, that the disease germs would be killed.

DR. FRACKER.—If it is boiled for a half an hour it would be.

THE PRESIDENT.—Suppose you have several hundred or thousands of them?

DR. FRACKER.—I believe in connection with that the average man when he throws a can away empties the honey and throws the can out. We know a honey can contains honey on the side and will remain there; if that can is thoroughly rinsed out with hot water and turned up to drain where the bees will not get to it, and then thrown out, there will be less chance of it being a source of infection for the bees.

MR. YOST.—I don't think we could ever possibly cover the ground thoroughly. We are advocating the marketing of honey in five and ten-pound pails, and we can't induce the average public to boil, burn or destroy the five-pound buckets when they get them. They are not going to do it, and we are wasting our time and our breath. It is just a proposition we have got to fight out of existence along some other line. Another matter, a good many used cans are offered on the market, and they must be going somewhere, and they become a source of trouble in every place where they go. It seems to me there may be a source of attack that might solve the difficulty.

MR. UHLMAN.—There is another question I would like to ask, and that is in connection with the combs being put back on the hives for the season, to see what recurrence appeared in the yard in the way of disease and then to destroy the combs and treat the bees. Do you think a season would be sufficient to show that up? It has been a question in my mind how long it would take a comb under those conditions to show up the disease, because at the time they are usually put on, the bees would not go up there and carry down anything that might be for food, but would store honey in it, and later on might go to that super, maybe in another year or two.

MR. FRACKER.—We have no information on that point, except this one here. About twenty colonies in that apiary showed apparently as a result of super comb. We have every expectation that some of these will show up next year, and the only way we have to find out how much is to watch it.

MR. KINDIG.—I had a talk with inspector Hickey who seems to follow that proposition up. He knew it would appear for seven years, that is his experience extended over that period. That is in following it up for seven consecutive years the disease still continued to show up. I asked him how much longer he thought it would take. He said it was getting less and less, and he thought it was about over.

THE SECRETARY.—In speaking of those extra combs, were the combs that have had brood in them, or combs that never had brood reared in them?

DR. FRACKER.—In this particular case they were both. In the case of the gentleman whose apiary was reduced from 700 to 100, it was those in which no brood had ever been reared. That was his point, that if one brood had been reared it was all right, and that was the point on which he lost out.

MR. YOST.—It occurs to me that if we consider all the probable uses or methods of handling those combs, that the most practical plan suggested this evening is that suggested by Mr. Campbell: to keep a record, sterilize the extractor, and destroy the comb. It doesn't require much time, avoids retreating, and it is a very simple thing to do.

THE PRESIDENT.—What would be your method of sterilizing extractors?

MR. YOST.—Extract the combs that were from diseased colonies. Probably extract all the diseased honey you get out of brood frame, and rinse the extractor out with hot water. I think that is sufficient, if the water is put in there boiling hot, allowed to stand a few days and emptied and rinsed again. I think that is sufficient.

DR. FRACKER.—The primary fact seems to be to eliminate every trace of honey. The method Mr. Yost suggests would undoubtedly have that effect.

A MEMBER.—It seems to me that the man who lost one hundred thousand combs, his bees were diseased from some source to start with. His combs were free from disease. How do we know that most of that infection didn't come from the same source that diseased his first colony? Even if he had destroyed every comb, the disease might have

been spread through his 700 colonies, because the source of infection was not removed.

DR. FRACKER.—That is a question. As I recall, the disease was of about three years standing when discovered, but the smaller apiaries in the neighborhood, to the extent of about six miles were all cleaned up, so that the sources of reinfection were probably pretty well covered by that means, although this was not in an area clean-up campaign. We went out of the way from our regular activities in order to help this particular spot in one of the counties.

My method in setting the extractor is this: I take out the baskets, place a wash boiler on the stove with hot water, dip the baskets in and out, and sometimes I find it works very well.

THE PRESIDENT.—The annual reports from Washington say it takes thirty minutes or more to kill all the germs.

A MEMBER.—About bees that die of foul brood, when I was attending the convention in Detroit some years ago, a man said that when bees get disease in the wild state, the next season the millers will clean it out, then it is gone for good, so I don't think in that case you would be troubled more than one season.

THE PRESIDENT.—One other question I would like to ask Dr. Fracker. If I did not misunderstand him, his statement was that where European foul brood had once gotten a foothold it was impossible to eradicate it.

DR. FRACKER.—I am simply quoting Dr. Phillips on that. I do not know. We have never heard of any way of eradicating it.

THE PRESIDENT.—I had three yards in 1906 or seven. The European foul brood struck me and cleaned out one yard one season. There were not more than one or two hives left not diseased. I started in to fight the disease. Next year in the second yard I don't think there was a colony left but what had European foul brood. The third year all three yards had it and I had a big fight, but I succeeded in getting rid of it, and at my home yard we haven't had any European for nine or ten years, and we haven't found any European in any of the yards for three or four years. It seems to have disappeared entirely from this locality, not only in my yards, but I do not know of any in that immediate locality. I think this disappearance was largely due to efforts to get rid of it, but it may have been due partly to the fact that Italian bees were replacing the black bees. It doesn't seem to me that European foul brood is a serious problem when we have Italian bees.

MR. YOST.—If I remember right, you were not the only man that got cleaned up at that time. It was all over that territory. I think we spent three years up there working on it, and I think we cleaned it up.

THE PRESIDENT.—Do you know of any European foul brood in the south part of that county at present?

A MEMBER.—I don't believe there is a case reported in the county.

THE PRESIDENT.—I haven't seen a case of European in three years in my yards,, or anybody else's yard.

A MEMBER.—I don't think that you can eradicate European foul brood that way. It may destroy some entire apiaries and be there for several years, and good honey years it will disappear, and the first thing

you know, it will reappear again. As far as my experience goes, I think that statement coincides with experience. Nobody knows how to eradicate European foul brood, by any sort of treatment. I believe it will appear when you get certain conditions again, and have weak colonies, and when other conditions are right.

MR. KINDIG.—Dr. Phillips has been emphasizing recently the dangers of foul brood, which may help you in that situation. In the series of talks he has given for some time he has been emphasizing the fact that European foul brood is principally confined to certain regions and that a European foul brood region is usually determined by a lack of a good, spring honey flow, and that in those regions where there is a good spring honey flow, dandelions, and so forth, followed by a white clover flow, that European foul brood never becomes much of a menace. I believe all the inspectors here will agree with me that location has something to do with it, and conditions, as we have found in years gone by, and I believe that to a large extent determines the condition of Mr. Miller's county of Porter, that they are not naturally in a European foul brood location, and when they requeened with Italian queens it removed the chief factor in keeping European foul brood in that area.

THE PRESIDENT.—I think Mr. Kindig is slightly mistaken on that point. Along the Kankakee and Calumet River bottom we have conditions which Dr. Phillips said foster the propagation of European foul brood. We haven't had any European foul brood since the time I stated. Mr. Wallace may have burned bees over in the other end of the county. I tried it in one case; I didn't burn any more. The point I wanted to show was how we treated it and got rid of it. In my own case I eliminated it by eliminating the bees subject to foul brood. When I found a colony with European foul brood I nipped off the queen's head, left them for ten days or so and then put them on top of another colony with an Italian queen, and they were cleaned up. At first I melted the combs up into beeswax, but I found that wasn't necessary. You do not have to burn or melt combs that have had European foul brood. The old combs may be used over and over again, and after a year or two's experience melting up combs I got along without it. It is not necessary to melt up combs to get rid of European foul brood, but eliminate the disease by killing the queens that are susceptible to this disease. I may be wrong, but I think the germs of this disease may be in a great many combs that do not show disease, just as the germs of consumption or tuberculosis may be in our systems but if we are strong enough to overcome the effect of that disease we may not develop it. Certainly it has been shown in the case of the large number of people who have died in prisons and elsewhere, that have been examined, it has been found that ninety per cent of them have tuberculosis germs, but they didn't show it without a post mortem examination. The same thing might be true of bees. There might be one hundred colonies of bees. Every colony might have the germs of that disease but perhaps only two or three will show it. By getting rid of those which are overcome by this disease, which are not strong enough to resist it, by and bye we eliminate the susceptibility to the disease. It has disappeared in my home yard. I think it is eight years since I had any sign of

European foul brood there, and I haven't seen a cell of it for three or four years in something like four hundred colonies altogether. I believe we can eradicate it permanently unless it is brought in from some outside source.

MR. SMITH.—I sent to a queen breeder in the south and got six queens one spring. I put them in my yard and three developed what I considered foul brood. Two of them I destroyed. A friend of mine, a Chicago beekeeper, a very careful man, a chemist by trade, wanted to take one of those queens and put it into a yard he had. He did so, putting it in a colony where there was no foul brood, and the disease developed there. He took her out of there and moved her south about six or seven miles, into another apiary of a few colonies; the disease developed there. I don't know whether it was European or American. In the early stages I can't tell the difference, but as soon as he found enough dead bees to be sure that the bees were unhealthy, he took the queen out and moved her about twelve miles into another small apiary where there was no foul brood, and it developed there.

MR. YOST.—Some leading bacteriologists have claimed that European foul brood was found even in the brood. I would like to hear from Professor Kelty along that line.

PROF. KELTY.—My experience is limited only to one queen, to the examination of the ovaries. Dr. White I believe performed a similar experiment and had the same result. I know of no other work on the subject outside of that. Of all I have heard in other reports similar to that related by Mr. Smith, I have never seen a statement made by bacteriologists which would prove it. There is a missing link somewhere.

A MEMBER.—One thinig in European foul brood which I think we overlook, they recommend for European foul brood re-queening with Italian queens, also be sure that the colony is strong. That is good advice unquestionably, but we sometimes give the impression that any Italian bee has its resistance quality to clean up the disease. I think you will find there is a good bit of difference, even with the Italians, and that we should select those Italian bees giving results, not put her in because she is an Italian.

THE PRESIDENT.—You would eliminate all those queens susceptible to this disease and keep only those which seem to be immune.

I find here a written question: "Would it be better to have just one treatment that would answer for either American or European foul brood instead of having two different treatments? After having had twenty-five years' experience in fighting both American and European, I find the treatment that seems to be the most effective is to transfer the bees, kill the queen and give them another queen. Who knows when to treat for the American or when we treat for the European there may be a little American. One thing we do know is that disease doesn't always yield to present treatment." Take the first part of that question, would it be better to have one treatment that would answer for both?

THE SECRETARY.—I don't believe a good doctor would try to treat two diseases with the same medicines.

MR. RETTIG.—I don't see why you couldn't have one treatment to answer the two purposes.

THE PRESIDENT.—It seems to me the method of destroying the combs for European would be very costly.

MR. MURRAY.—There is a wider difference than that. European foul brood is a disease of weak colonies. If you have a colony that is weak enough to have European foul brood, and you shake the colony and take away the comb and brood and put them out to build new comb again, you have weakened them that much more. It is folly to attempt to treat European foul brood by the shaking method. Everybody knows, who has had any experience with the disease, that you can take a comb full of larvæ of European foul brood, put it down in the center of a brood next to a healthy colony of Italians, and they will clean it out, and the colony as far as you can see will remain free from the disease. You can't do that with American foul brood.

A MEMBER.—Give the treatment for European foul brood first, and if it does not respond, treat it for American.

MR. RETTIG.—It has been suggested to have a law not to allow a pound of honey to be sold wherever there was any foul brood. How would that work? If you treat for the European you lose the queen, and if you treat for the American you lose the combs.

A MEMBER.—Can you always tell the American from the European?

THE PRESIDENT.—Not always, but usually.

MR. KINDIG.—I had a speciman sent to Dr. Phillips pronounced American, and another specimen sent him from the same colony was pronounced European, so it is a pretty hard problem to distinguish the two diseases.

MR. MCMURRAY.—We found in one or two cases where they would both be in the same colony.

THE PRESIDENT.—Ordinarily you can tell the difference by the appearance of the brood. In European foul brood the disease attacks the larva before it is capped. In the American foul brood it occurs after being capped. Of course, that is not decisive. The only decisive test is a microscopic examination by someone who knows how to make a diagnosis.

A MEMBER.—I would like to hear a word on paralysis.

THE PRESIDENT.—That is something nobody knows very much about the cause of. So-called paralysis doesn't always appear in the same form. Usually the bees are dropped out in front of the hive and the younger bees will be pulling at the older ones, the hairs on the body will be worn off, and you will find them oftentimes in the grass in front of the hive. Sometimes it has a different appearance. I remember one time about swarming time I noticed in front of some of the hives young bees crawling around through the grass. We found them out ten, fifteen and twenty rods crawling all over the ground. I thought perhaps a swarm had gone out and the young bees were not able to fly, but upon examination I found that more than half of the yard the younger bees were coming out and were unable to get back. This lasted

a day or two and disappeared. I don't know what that disease is, unless it is what is known as disappearing disease.

THE MEMBER.—I had a case of paralysis in one of the strongest colonies in the yard. The bees were fighting and pulling at each other. First I thought they were robbing. I kept watching and it kept getting worse and worse, and one day I picked up some of these bees and took them in the house to inspect them. They couldn't fly, they jumped like grasshoppers. Suddenly they would get the limps and roll around and kick around for a few minutes, and then they would turn over and walk around. They couldn't fly. That colony kept on going like that all summer, and I noticed some of the other colonies were affected in the same way.

THE PRESIDENT.—That frequently occurrs. Nobody knows what caused it. There is another disease called the Isle of Wight disease, which is in some instances like this, but we can't tell what it is. The only way is to have our specialist at Washington conduct a thorough examination, microscopic, of these diseases. I think they are working on it, but we do not know much about it yet. I found bees crawling out that way and being pulled around by other bees one year a good many years ago and I took them and put them under a microscope, and I found they had something fast to their legs like long clubs, they couldn't fly or get around on account of those things hanging to their legs, sticking out perhaps one-quarter of an inch. I wrote to Prof. Cook at Michigan University, he suggested that it might be pollen from milkweed, and I looked into the matter and found that was what it was. Bees would get pollen from certain kinds of milkweed, and it would stick to their legs and the other bees would drag them out of the hive.

Here is another question: Who has had experience in heating colonies by electricity? What success, if any, what kind of apparatus, and the cost of power heating this apparatus?

MR. CAMPBELL.—There was an article on the next to last American Bee Journal on that proposition. Some experiments had been made with heating with an electric bulb in the hives. That would be the November number of the American Bee Journal.

THE PRESIDENT.—Do you remember what their method was?

ANSWER.—To put a bulb in the bottom of the hive for outdoor wintering.

THE PRESIDENT.—The last question we have is, "Who has used two queens in one colony, what success, if any, what was the equipment used to prevent fighting of the queens, also of the workers, yet have all the swarms all working in the super above, brood nest, as good as you have from one queen. What are the advantages and disadvantages of this way of procedure?" Who will answer this question?

MR. MCMURRAY.—I carried on some experiments along that line. I had three queens working in a brood nest with division boards made out of queen excluding zinc. The bees mixed and intermingled in that hive. They worked right along, they didn't care anything about the different queens, so they didn't get together and fight. I afterwards removed two queens and left the colony with one queen.

THE PRESIDENT.—I have done that myself. I had two queens reared and working and laying in the colony without any excluding zinc board, on the same comb, but that is very rare. The two queens I found in the hives there at work. The hive a few weeks before that had an old queen with a clipped wing, I found in her place two young queens, both laying. This summer I found two cases of two laying queens in a hive without any excluding zinc between them. The method of having two queens in one hive separated by zinc will work as long as conditions are favorable, but if the weather turns bad so that it affects the flow of honey, one of those queens is very apt to disappear.

QUESTION.—For how long were those two queens working together in one hive without zinc?

THE PRESIDENT.—For a few days, perhaps a week. I put one of them in another hive.

Whereupon the meeting was adjourned.

TUESDAY MORNING SESSION.

THE PRESIDENT.—Gentlemen, you will please come to order. I see quite a number of members who voted yesterday for an increase of the $1.50 fee to $5. There are some who believe it would be better for the association not to make such a radical change, and if we feel that way about it the proper thing to do would be to make a motion to reconsider and go over the ground again. The motion for reconsideration should be made by someone who voted for it at yesterday's meeting.

Whereupon it was moved by Mr. Haan duly seconded and carried, that the motion for increasing the initial dues be reconsidered.

MR. UHLMAN.—If a man belongs to a state organization that joins the league, and then comes here and joins with this organization, it will give him double representation. Personally I feel that I can stand for supporting the league one year in Michigan, but I would like to get some data on representation in more than one organization.

THE PRESIDENT.—That point will be taken up by the executive committee of the league, probably some time today.

MR. RETTIG.—We are all here to help, and further our association. How can we increase our membership? I think a fee of five dollars will keep some people out. As far as I am concerned I don't mind it, but I believe we will cut off a lot of our membership in that way.

THE PRESIDENT.—We want to do the greatest good to the greatest number. If it is the best interest to have a $5 fee let us have it, if not let us make it smaller. I believe every one of those who have paid in their five dollars, and there have been twenty or twenty-five, are glad to do so. But there are two sides, and I would like to hear someone on the other side.

THE SECRETARY.—The question has been raised in regard to increasing our membership. There has been a $1.50 fee for several years. I have been secretary for four or five eyars and the membership list has never yet reached the 100 mark. Last year we had 73 members, which meant we had $73 in our treasury. We have either got to have about four or five hundred at one dollar apiece, or one hundred at five dollars. When I made this motion to raise the dues to $5 it was to get a little further ahead. The question of electing a delegate to the league comes up, and the expense. Probably three dollars or two and a half will be sufficient, after we get it started. My idea was to make it for this one year only, so we get a start. It is up to you, what do you think about it.

MR. RETTIE.—I am anxious to get as many members as possible into this meeting. I paid my $5, but a lot of little beekeepers consider that question important. Why are we here, how can we sell our pro-

ducts best? We have this association to learn how to produce honey, not how to sell honey.

MR. ZILLIGEN.—What is the use of raising honey if we are not going to sell it. The object of business is profit as well as pleasure. There is no use coming up here to learn production. There are plenty of places to learn without coming here. If they want to find out anything, read the bee journals. Last year we had a little community fair in Harvey, and from one day's advertising there I sold practically all I had. I think that advertising cost me possibly five or ten dollars. I think if we put in five dollars this year and next year, it would be better.

THE SECRETARY.—It costs us $100 to join the league. It will probably cost $100 to join the Illinois State. Where are we going to get our money for expenses for the next year? We want to have enough money so that when we come here next year we will have sufficient funds left in the treasury to take care of the delegate, wherever the convention may be held.

MR. KILDOW.—I think Brother Bull has got things mixed a little. I don't know what the Illinois State will charge him. I can't vote either way on this.

MR. RETTIG.—We read the bee journals and many good books on beekeeping, but there are many points we don't get out of books that we can learn from each other in a meeting of this kind.

MR. HAAN.—How about it if we were to join the State and the league, and the State joins the league?

THE SECRETARY.—We join it twice, once here, and if the Illinois State wishes to join our membership would go in the same as if we joined individually. There is a minimum fee of $100, a dollar apiece.

MR. HAAN.—If we were 100 members here we would have to pay $100 to get in the league and $1 apiece for each member by going to the Illinois.

THE PRESIDENT.—I don't think we have to join twice, according to the rules of the league.

MR. KILDOW.—Why don't you wait until the league know what they are going to do?

MR. BRUNER.—We don't expect today for a dollar and a half twice the service we got four years ago. Isn't it worth $5 to belong to the American Honey Producers' League in addition to the other service we have had.

MR. GILL.—I don't think we ought to join the league twice, and if we pay to the Illinois State it seems to me our membership would be combined with theirs, and if their membership is not large our combined membership might be 100. I don't think we ought to have a fee that would bar us from getting new members, but it should be sufficient to accumulate a little money to get ahead for whatever we decide to do. I think it would be well to raise this to $2 or $2.50. I move to amend the motion before us to make it read that the fee be $2.50 instead of $5. (Seconded.)

MR. YOST.—I think there should be a resolution here asking the league to eliminate the paying of dues more than once by an association.

THE PRESIDENT.—I am going to make a ruling in regard to those who have paid for 1920, that those who have paid for 1920 or 1921 will have the privilege of voting on these questions, allowing Mr. Smith or anybody else who has paid for 1920 to vote. Those in favor of substituting $2.50 for $5 please rise. (4 rose.) Those opposed (8). The amendment is lost.

MR. BRUNER.—I move as an amendment that we make the fees $4 per year.

MR. WOOLDRIDGE.—I paid my $1.50 as a member and withdrew it. I will go to the Illinois Association and join there in preference to coming in here and paying $5. It is not the $5 but I think it is going to destroy the association. Your members are going down in number, and when we come to a point where we want an allotment from the State you will be asked how many people do you represent? If we have a lot of members and make an appeal for a budget in our State we will get more consideration than if we have only a few members.

THE PRESIDENT.—If there is nothing further we will vote on this by ballot. The question is, shall the fees be raised from $1.50 to $5? Write no or yes on the ballot. This is for the membership fee for the coming year, 1920-21.

Messrs. Wheeler and Hahn were appointed tellers.

THE PRESIDENT.—22 votes cast, 14 no, 8 yes. The motion is lost. The question now is whether or not we shall now make any increase in membership fees. Is there a motion on that?

MR. RETTIG.—Why not table this question and be done with it.

THE PRESIDENT.—There is no question before us. If you have nothing further we will proceed with our regular program. Mr. Yost will speak on Organization. Mr. Yost is chief inspector or apiaries of Indiana.

MR. C. O. YOST.—Mr. President it seems to me after hearing so much yesterday, that the topic I intended to talk on is a little bit out of order for this morning, the subject of organization. It was threshed out pretty well yesterday, and I believe organizations were given all kinds of reputations. I might talk organization for a week and not cover all the points or get to any satisfactory place, and due to the fact that there has been so much discussion on it, I am going to read to you a little bit some of the fundamentals that I have selected.

That there is almost unlimited power in organization, is a fact that is recognized by all thinking men and women pursuing the various vocations of the human race.

A brief study of a panoramic history of the world would afford us some very interesting data relative to power, success and failure of organization, with its many forms and purposes which were good, bad, selfish and weak, strong elements of control. Should we make such a historical survey, through earliest kingdoms and nomadic tribes, wars of religion or crusades, wars of conquest, which were organized for the purpose of giving a ruler or rulers more power, wealth and glory, the building of great monarchies or empires, either limited or absolute, the mighty Roman Empire, the powerful machine of Alexander or Cæsar, the Teutonic wave, the stormy periods incident to the building of the

British Empire, early discovery of new lands with accompanying purposes of their settlement, formation of Republics and empires, of many factions and destinations, nations with military organizations of great magnitude, the creation and destruction of powerful navies, finally our own U. S. A., the grandest and most powerful government ever organized.

We may, by some study of factors controlling these myriads of organizations, form a clear conception of the direct or remote causes, as to why they rose or fell, conquered or were annihilated or subdued, developed in wealth and culture as become world powers. Whatever transpired during this great world drama, most assuredly depended upon the purpose, power and efficiency of the organization, relative to the event.

In my mind there are three kinds of organizations, as follows: good, bad and harmless, and each is dependent upon two elements for its progress.

These elements are first the purpose and second the personnel or officials in control. A beekeepers' organization is not, in principle, unlike other thousands of organizations which play a prominent part in the industrial world today. Banking institutions, railway and telegraph corporations, religious and educational institutions, secret orders, industrial unions and scores of others relative to the mercantile or manufacturing industries. We are all more or less familiar with the life transitory of these combines or organizations. Some have prospered, others failed and then reorganized. Some have passed into oblivion to be replaced by new ones later. I believe that every intelligent man and woman can readily apprehend the fact that the cause of failure or success of these organizations may be found lurking within one or both of the two elements mentioned above (purpose and personnel in control). It would at first seem unnecessary to mention the bad and harmless class of organization, but I am firmly of the opinion that our careful consideration of them will enable us to gain a comprehensive idea of their most inner activities, their purpose, and control, their growth and failure. A bad organization is one whose purpose is set up in a misleading manner and rather than proving a source of pleasure and profit for its subjects, it leads more or less to their misfortune or downfall. Such an organization, while it may have a very bright colored purpose on paper, is realy at heart only builded for the benefits of the personnel in control.

Such systems as these are often found in political circles, also in monarchies and empires. The German empire consisted of a powerful military organization. The purpose of this empire was such that the subjects of same were marvels of loyalty, but we know how badly they were deceived and how heavily misfortune fell upon them.

The Russian monarchy reigned with a purpose probably just as deceiving to its humble, uneducated peasants. In these cases the glory and power seeking personnel in control came to grief the same as the deceived followers.

A harmless organization is simply one whose purpose is merely an innocent dream of beautiful theories and whose personnel are much

addicted to the discussion of theories and ideals of a useless, harmless, unpractical nature.

Good organization is one in whose purpose we will find embodied such fundamentals as are conducive to the happiness, prosperity and cooperative contentment of its membership, a purpose with an attainable ideal builded solely along legitimate and honest lines, a purpose that within itself will create a desire in intelligent men and women to become a part of the affiliation, a purpose that will relieve the many needs of its prospective membership. The beekeepers certainly have many needs and I do not believe that the followers of any other vocation are more willing or anxious to form an impartial progressive, protective combination than they. It occurs to me that there are three vital environments that are of special concern to the beekeepers of the present. They are, disease environment, market environment and educational environment. Either one of these environments is a large subject within itself and can only be listed here as one of the important fundamentals relative to progressive organization.

After having established a fixed purpose for the organization, we must next look to the personnel in control. It does not matter how sincere, commendable or applicable the object or purpose of an organization may be, or how faithful and true the assisting factors, unless the control is made up of officials capable of untiring leadership that will ever keep in view the real interest of every supporting factor constituting the organization, the efficiency of the real purpose will be greatly lowered even to the dangerous point of much failing in interest and probable desertion by the membership.

The membership or supporting factors are the organizations embodiment of life and there can be no surer sign of its decay than their discontent and desertion. In order that the purpose or ideal set forth in creating an organization may not become afflicted with degenercy but instead will maintain a steady healthy development along progressive and attractive lines, it is essential that every official be sincere and of sufficient bigness, strength and energy to fulfill their destiny in a manner as required for the continued upbuilding of the organization. (Applause.)

MR. DADANT.—During this meeting we heard a great deal about cooperative organization, and we have with us a good many representatives from the different states. Practically every state in the Union has some course of instruction in its agricultural college, which is educating the beekeepers in its own state. This is probably the most important work that is being done today. As you know, all of us have to fight bee diseases in nearly every place we locate, and the biggest work I think being done by the colleges that are conducting beekeeping courses, is to educate the people in their state in the way of combatting these diseases. You know Illinois is behind every state around us. Probably Missouri is the only one that has as little instruction in beekeeping as we do, and I think they have a little more than we have. Nothing has been done in Illinois except the conducting of a few classes in beekeeping in the entomology department. I was at the university a few weeks ago and I find the time there is ripe for the establishing of

a beekeeping course in the college of agriculture or entomology. Dr. Forbes at the head of the health department has to get out a budget calling for a substantial sum to be appropriated by the university for the conducting of a beekeeping course, but like every other department, they are calling for something additional, and it is a question whether that will be granted. We went to see Professor Davenport, vice-president of the college, and put the matter up to him. He said the only question is as to how much of a demand there is among the beekeepers of the State for this course in beekeeping in the University of Illinois. If there is a big demand for it, you will get it, he told us. It depends on how you make your wants known as to how much money you can appropriate for this purpose. In Illinois we have an inspection department and they are working well but under a great handicap, and I believe if we can get a course of instruction at Illinois with short courses, it will be a big help to the inspection department and I would like to see at this meeting a resolution passed or a committee appointed to cooperate or help push this through in the university, take it up as beekeepers, and have them write to the agricultural department or department of entomology at Urbana, asking them to establish a course in beekeeping there. It is only by the concerted efforts of the beekeepers throughout the State that we are going to get something worth while, and I would like to see such a resolution or motion passed at this meeting, and some work really done on that subject (applause).

THE PRESIDENT.—What is your pleasure in this matter? Will you put this in the form of a motion or resolution?

MR. DADANT.—I would like to hear from some of the other members. I know a great many beekeepers think these courses in the agricultural colleges on beekeeping are simply for manufacturing beekeepers. They think if you establish a course in the University of Illinois you are going to make a lot of beekeepers there that will compete with the other beekeepers. I would like to hear from you. I don't feel that way at all. If they give a course at Illinois it will be along the right line.

MR. WOOLDRIDGE.—We need education very badly in this State. If we had an opportunity to have a real educational course where beekeepers could have someone that could give them good advice, instruction and observation, we would stamp out this dreaded disease. The only way I see that we can accomplish anything in that way is to get it in our colleges and universities, and I believe if there is a concerted effort on the part of beekeepers in the State of Illinois, the State institutions will take it up to the best advantage, and I heartily approve of having an appropriation set aside for the purpose of having a short course at least established in our present State institution.

MR. DADANT.—It is up to the beekeepers to inform the authorities in the University of this need. That seems to be the logical place for it to go. It is a question of making them see we need that education, and if we can make them see that, they will give us the course in beekeeping at the university. They are there to educate the people of the State along the lines that they need education.

THE PRESIDENT.—That being the case, it would seem to me if we could pass a resolution favoring that, it would have considerable weight, if that is your desire.

MR. HAWKINS.—I think it is not necessary to go to the legislature, because the university has a certain definite amount of money voted to them every year by the legislature which the deans of the various colleges are privileged to use as they see fit. The dean of the college of agriculture could appropriate out of his fund so much per year for beekeeping in the State of Illinois. The legislators don't ask how that is going to be spent as long as they know it is well spent. I know, and Mr. Dadant knows, that the Illinois College of Agriculture has been favorable for a number of years toward doing something in the way of beekeeping instruction, and the principal reason why they have done nothing is that they have not been asked to. The way to do that is to go to the dean of the College of Agriculture and say, we would like to put on a course of beekeeping. Who asked for it? Then the instructor will want to know that it is an outside desire for education in that line for the university, before the university is warranted in spending money there, and when you present a resolution to the dean of the College of Agriculture in the University of Illinois, requesting instruction in beekeeping be given, you are going to have much more consideration.

MR. GILL.—I want to say that for a long time I have felt if we want anything at the hands of the State institutions the request must come from without. And to the extent we can show we want this thing will we get it, and I believe there is nothing that will do the beekeepers more good than disseminating information along up to date lines among the young who will be the beekeepers of the next generation.

THE PRESIDENT.—Shall a committee be appointed to prepare a resolution?

MR. DADANT.—I move that a committee be appointed to draft a resolution and see that it gets into the hands of the president of the University of Illinois, the dean of the College of Agriculture, and the dean of the College of Entomology.

Seconded and carried.

MR. SAM'L CUSHMAN.—I am interested in this movement, and I realize that it ought to come from those that do not conduct bee journals and publications of that kind, and don't sell hives of bees. I was the first one about thirty-five years ago to be employed to teach beekeeping in a college, the first one in this United States. I went out of business a few years after, and it has been a pleasure to me to see it extending all over the United States and in the agricultural colleges, and to think Illinois doesn't have that sort of instruction doesn't look good to me. I would be willing to connect myself with that resolution, back it up and do what I can in the future. I have never had much experience with foul brood. The great argument for having this instruction is to serve the people that are keeping bees, so that foul brood can be stamped out and kept cleaned out, and I will heartily take up that idea and try to put it through to the best of my ability, if my name is of any use.

MR. SMITH.—It seems to me this is a move in the right direction. We should have had it years ago and in my judgment we ought to have it to the extent that every man who keeps bees ought to be licensed or have permission to keep them from some state institution. It is the man who doesn't know anything about beekeeping that is a detriment to others. If they get foul brood they are going to inoculate the whole neighborhood. It is wrong to allow a man who doesn't know anything about a business to ruin the business of other men who do know something about it. There is enough honey going to waste in Cook county, if gathered, to support three hundred families and give them all they want. We must control foul brood, and we can't do that in any other way except by state laws and education. We ought to have a correspondence course from the State university. If we had it, I would take it.

THE PRESIDENT.—I will appoint on that committee as chairman Mr. Cushman, with Mr. Woodridge and Mr. Smith. As I understand it, none of these three gentlemen are manufacturers.

QUESTION.—Why does the crop of honey around the vicinity of Chicago seem to be thinner this year than it has been for years?

MR. SMITH.—I don't believe it is the crop, I believe it is the bees. For three years I have had a strain of bees that have produced a surplus every year, from 60 to 180 pounds, while other colonies in the same apiary didn't produce any. All of them had the same chance, but only about five out of twenty produced a surplus. One of them produced over one hundred pounds in that particular apiary. None of the five produced less than sixty. I have never kept bees for profit as a first consideration. My object in studying bees in the first place was to find out something about them nobody else knew. I need a hobby, whenever I haven't got a hobby I have the grouch (laughter).

THE PRESIDENT.—We will adjourn till 1:30.

Whereupon adjournment was taken until 1:30 p. m.

TUESDAY AFTERNOON SESSION.

An election of officers was held, and the following officers were elected:

President, Mr. E. S. Miller.

Vice President, Mr. C. O. Smith.

Secretary-Treasurer, John C. Bull.

Delegate to the A. H. P. L. meeting, Mr. Miller.

THE PRESIDENT.—We will hear the report of the resolutions committee.

MR. CUSHMAN.—Mr. President, the committee agreed we would simply make the request for the instruction. The average business man in our midst connected with beekeeping does not have much of an idea of the value of the honey crop of any of our states or of the United States, and I hope the president and trustees in the present college may have something said to them that will call their attention forcibly to the importance of the industry in the various states of the country,

and how much is being done there compared to what we are doing here. Our request is to President McKenzie and the Board of Trustees of the University of Illinois, Urbana, Illinois.

Gentlemen, we, the assembled members of the Chicago-Northwestern Beekeepers' Association urgently request that you furnish instruction in beekeeping for the education of all in the State who now keep bees as well as the coming generation of beekeepers, that they may not only be able to intelligently overcome bee diseases now menacing the honey producing industry of Illinois, but thoroughly understand the most profitable and successful method of honey production.

THE PRESIDENT.—You have heard the report, what do you wish to do with it?

MR. WHEELER.—I move we adopt it. (Seconded and carried.)

THE SECRETARY.—Mr. President, if I have this straight, yesterday we had a price committee appointed to send out price letters, and we voted to join the American Honey Producers' League and elect a delegate to go to the meeting, wherever it might be. Just a few minutes ago we elected the delegate. After joining the league there was a motion to assess the members for the expense of the delegate. That being the case weare all subject to an assessment sufficient to cover the expenses of the delegate at the Indianapolis meeting. We also moved to join the Illinois State association. I presume our membership fee in the Illinois association will be the same as in the past, until we hear differently, anyway. In what order will these things be taken up? In case there is not sufficient funds to do all this, in what order will they be taken up, in the order they were passed, or how? First price committee, second joining the American Honey Producers' League, send a delegate there and pay the expenses, further join the Illinois State Association. I don't want to get tangled up if I handle this next year, I want to know exactly what procedure to take. The wording of the resolution is that the assessment shall cover the expense of the delegate only.

MR. YOST.—I move that the outline be followed as it was taken up, beginning with the price committee first.

MR. WOOLDRIDGE.—I move that we take the list and go down as the time comes for the money to be used, and pay for it by special assessment. I don't know what your rules are about making this special assessment, but when the amount is obtained and pro rated to all the members, let them pay up.

THE SECRETARY.—You mean make one assessment for the entire amount?

MR. WOOLDRIDGE.—Yes. Your books show the amount you have collected.

THE PRESIDENT.—Mr. Wooldridge's motion is that the money we have be used as far as it will go, and for the balance we will make an assessment upon the membership. (Seconded.)

The motion was passed unanimously.

THE PRESIDENT.—Anything further before we adjourn? I want to say I am pleased with what has taken place here, and I hope we may all pull together. There is nothing gained by pulling apart. Let us

work together and see if we cannot make this association worth while. I think we can.

(President Miller left and Vice President Smith acted as Chairman of the meeting.)

THE CHAIRMAN.—What is your further pleasure, ladies and gentlemen? Any motion, any question you want to ask is in order, provided it is within Robert's Rules of Order.

QUESTION.—Have you a bee inspector near Valparaiso, Indiana, for that territory?

MR. YOST.—No, sir. I live in Indianapolis. Mr. Johnson is at Logansport. We have no county inspectors, and I think we never will have.

MR. HAWKINS.—That proposition of inspection is really worth some consideration. I think Mr. Kildow's greatest trouble in this State is that he probably hasn't had the support by the beekeepers in the state that he should have had. He has failed to receive the support of the beekeepers in this State in different ways. I don't believe he has ever had enough support, particularly when he was attempting to get adequate funds for his inspection service. I don't believe he has had the support of the beekeepers in cleaning up diseases, as he should have had. I am not criticizing the members of the Chicago-Northwestern Association, because most of us know enough to clean up disease when it appears in our own yard. I am talking about the smaller beekeepers throughout the State, whom we might happen to know. I think one reason you have as much disease as you do in Illinois is because you do not stand back of Mr. Kildow. I think you people owe it to him, in helping him eradicate bee diseases, to stand back of him in every way. Go to him and find out if he has got the kind of assistance he wants, and ask him what you can help him to do to get it. Let us make Illinois a State free from bee disease. I do not know much about bee diseases in the northern states; I am more familiar with the disease situation as it exists in the south, and I know that they view with alarm in southern states the importation of bees in any form from the north, and they have a perfect right to fear the importation of bees from the north because of the fact that through nine out of ten shipments of bees of any consequence into the south from a state in the north could be directly traced the bee diseases in the south. I know the first case of American foul brood in the State of Florida was traced directly to a shipment of bees from Iowa, and at the time I was in the service I was sent down there to trace the shipment, find where it went to, inspect the bees if possible and find out if they had disease, and those bees were brought across Georgia and on down the river and infected the whole territory in Florida. They had spent some fifteen thousand dollars cleaning up the effects of that one shipment of bees. The southern people, by virtue of these facts, have a right to fear shipments of bees down south from this part of the country. It seems to me a commendable thing that the commonwealth of Illinois, thorough as it is, should have more beekeeping work in the college and should be more free from diseases than it is. I don't know whether Mr. Kildow feels he has

enough help and funds, but if he feels like most of the inspectors he will take all the money he can get. The funds come from the state legislature by a committee of beekeepers appearing before the appropriations committee or ways and means committee or Senate, and asking for them. I know the director of the department of agriculture at Springfield personally. He was at one time a candidate for governor. He has some bees himself, and is very much interested in bee culture work, and if Mr. Kildow needs anything, and he needs support in other than his own work, I am sure he will find that man to be in a very receptive mood toward the beekeepers in this State. Atkins is his name.

THE CHAIRMAN.—Very few beekeepers come to us with any constructive ideas. We are not so big that we know it all. We are not so wise that we do not make mistakes. We are not so successful that we do not make appliances that can not be bettered, and the thing we invite sincerely is constructive criticism from beekeepers.

A MANUFACTURER.—We welcome criticisms and suggestions. That is why we ask the beekeepers their opinion of certain items, but nobody ever comes to us with constructive ideas except in very rare instances. And what is more, we are willing to pay for them. We do not want anybody's services or information for nothing, and at any time any association or beekeeper has any ideas or criticisms about the goods we make, they are certainly welcome to tell us about it.

THE CHAIRMAN.—Personally I think the supply man does almost more for the beekeeper than any other information. I get as many of their catalogues as I can and study them. I would like to ask Mr. Hawkins what they have done about a wintering case that is such as developed by Dr. Phillips.

MR. HAWKINS.—We tried that out last winter at the University of Wisconsin, and abandoned the idea on the principle that Dr. Phillips has gotten up, for the reason that at the present cost of materials the thing couldn't be put on the market at present at a figure we felt we could afford to ask the beekeeper to pay. I believe the principle of the thing is good, so this winter we are experimenting with an entirely different type, and we hope by next fall to have something that can be put out at a price which the beekeeper can afford to pay.

THE CHAIRMAN.—Have you any new appliances that are not in general use?

MR. HAWKINS.—That is a question I cannot answer.

QUESTION.—How do you like the Porter bee escape?

MR. HAWKINS.—I have never had a Porter escape that didn't work, that I know of. I have had them where you would have to wash them out with boiling water to get them to work again. In shipping or handling the springs may have been bent out of shape.

MR. CUSHMAN.—My experience was unsatisfactory, and I thought the explanation of it might be that during the war they may have used different material. A dozen beekeepers of Maryland told me they couldn't depend on them. Of course I have never been at the plant of the Porter people, so I don't know what material they used in war time. I have seen Porter escapes and put them on myself, that I didn't

think would work, but I bent the springs so they came tighter together. I think that would happen from the handling of the escape in shipping.

MR. HAWKINS.—The people in the University of Wisconsin made some interesting experiments this fall. They put an empty hive body over an escape board in which they shook a lot of bees, and then used a glass inner cover so they could watch the bees, and they found a very interesting thing in connection with the trapping of those bees below, that instead of the bees making for this hole, they went around and around on the surface board, and it looked as though most of them that went through the outside found the hole. Then they took four escapes, and put one in each corner so that when they started around the outside they ran into one of these traps, and they got them out in about one-tenth of the time. Some have escapes going across the center. I do not know why it is put there.

A MEMBER.—It was put there because that is the warmest place in the hive. In the fall when the weather gets cool if you have an escape in one corner of the board the bees won't go through it at all. If you put them in the middle you can get the bees out in cold weather.

MR. HAWKINS.—Ninety-eight per cent of the honey is taken off when the weather is warm. If you had four escapes there could be sufficient circulation to attract the bees to the corners.

A MEMBER.—I have used ventilating boards in front, in order to keep the honey warm enough to extract in cool weather. I find if you have any young bees in the upper story they will wander over this ventilating board and don't find the escape and don't pass below. They die.

THE CHAIRMAN.—We will hear from Mr. Kildow.

MR. KILDOW.—I am going to ask a favor of the Illinois beekeepers. Ever since the war I have been handicapped in my work in two ways, by not having enough money, and by not having competent inspectors. When we first started we thought we were getting fair wages, four dollars a day and expenses while we were at work. The last few years that hasn't been anything. A beekeeper of any experience at all would not leave his yard and go out and inspect bees for four dollars a day. You can't blame him. I can't get a good man, the money will not permit it. And so this winter we are going to, in fact already have put in for an increase in our money, and I want to ask all you Illinois beekeepers to write your representatives and senators, asking them to support the men that have our agricultural board, and if we can get a reasonable amount of money we can get better qualified men, more of them, and we can help more all over the State. As it is, I have only had four men this summer, and they didn't do much. We tried to keep it going a little, so it wouldn't fall clear down, but they lost money every time they went out. If we could get a reasonable amount of money so we could put in more men and competent men we could do more work and there would be no complaint. I wish you would all write your representatives and senators and tell them to support any bill that the agricultural board puts up.

THE CHAIRMAN.—I see another gentleman in the audience we would like to hear from, Mr. Boyden.

MR. BOYDEN.—Mr. Chairman, I didn't come here to make a speech, in fact I dropped in to attend the meeting of the league, but I want to assure you I appreciate being here and meeting some of the men I used to know years ago when I was a small boy working for Mr. York over here on Michigan Avenue. I want to indorse something Mr. Hawkins has just said to you relative to bee supplies. We welcome any honest, constructive criticism in our line. And referring to the gentleman who said something about springs, I want to assure you if any of you get goods from our house which are not satisfactory, we want to know it. If you will send the springs back I will pay the postage and make the manufacturer send you good ones. The company have endeavored since their organization to put out good goods, and it is distressing to us to find our goods are not what we hoped they would be. I wish I could express to you something that is in my mind of some of us who have something to do with the material manufactured in our factory relative to standardization of equipment. We know many beekeepers have many minds, but it seems to me that the forward-looking policy of the industry should be the standardization of hives. I know there has been a great deal said through the columns of bee journals of late, relative to a larger hive, a thirteen-frame hive, a twelve-frame hive, and I don't know what other kind of hive. I am sure they are all good. From a manufacturing standpoint it is some problem to manufacture all these sizes and keep the cost down. It is only by large production that the cost is maintained as it is at the present time. Possibly those of you who have had the experience of selling your bees appreciate this fact, that you can sell bees or equipment of standard sizes much better than you can without those sizes, so that is a distinct advantage.

We hesitate about putting forth new ideas in catalogues, because we like to see it tried out. If it is proved a success we want it. If it is a fad or fancy we do not like to foist it upon the beekeepers. What is successful with one mind would be a detriment to others, so it is rather a problem to know where to draw the line. I believe beekeepers can afford to stick very closely to standard goods.

THE CHAIRMAN.—I would like to have every one who wishes to discuss the question take the floor. The only standardization that I would recommend is that I am in favor of progress always, in favor of changing when we get something better, but not otherwise. For instance, it seems to me that the top bar of the Langstroth frame should be of the same length. I find the Langstroth hive body is of two or three lengths. I don't know who makes the different lengths, but I know much of the time when I go to my apiary and change a frame from one hive body to another, I have got to cut off one-fourth inch or drive a nail in the end of one to make it lap. They are factory made hives.

MR. COPPIN.—They did manufacture the brood frame with a long shoulder and didn't use the staples in the ends. Now they are making them with a shorter shoulder, long enough for the bees and with the staple to keep them from sliding off, and if you have the short one and don't use the staple, they will be apt to drop down, while on the other hand some of those full-length, I find you need to cut some of them off.

THE CHAIRMAN.—That is as much the fault of the purchaser as it is the fault of the manufacturer. The purchaser ought to know what kind of goods he wants and then order what he wants, and know what is in his apiary, and buy to match it. I don't blame all the troubles I have onto other people.

MR. CUSHMAN.—The resolutions committee would like to ask if what we have done is all you want us to do, or do you want us to go further in any way?

THE CHAIRMAN.—I understand it is the duty of the committee to see that the resolution gets into the hands of the proper party at Springfield. Anything further?

MR. MCMURRAY.—On the question of European foul brood, there is evidently something about that disease that we do not know. We have had some cases in Wisconsin where Europeana foul brood destroyed large apiaries in spite of everything that could be done that was known to do, and it takes on a form that even an experienced eye cannot detect from American foul brood in certain stages. While I am on the floor I want to say to you Illinois people that if you buy bees or queens from Wisconsin we are going to do everything that is humanely possible to see that those bees come to you free of disease. We are not going to allow diseased bees to go out to you if we know it. In some cases we have kept yards from moving out of the State. Our experience is that when you move you move the disease. The same thing is true about bees coming into our State. We are going to have to know that those bees are not only clean when they started, but they must have been clean for a long enough time that we are reasonably sure that there are no foul brood cells in that honey. Sometimes I think we are going to have to come to the proposition that bees are going to be moved interstate as combless packages, or shook on foundation and moved. Our records show in Madison, where we tabulate and put things on maps, that foul brood is being scattered by the movement of foul brood bees and old hives, and that is the best reason why we should have a law to control the moving of bees in the State. We quarantine all bees and all bee supplies so that it is unlawful to move or sell bees or move or sell used bee suplies without a permit from the State inspector. It is costing something to administer that law, but it is worth it. I believe today if you enforce a law like that and do not do any clean-up work at all, just quarantine every colony of bees in the State and fight every man that attempts to sell or move bees or used bee supplies without a permit, that it would automatically clean them up. If the bees are not moved it will not scatter. Foul brood scatters from yard to yard very slowly. I hope you people in Illinois will put on a campaign of this kind, and that you will take special care in inspecting bees that come into the State of Wisconsin, and we will meet you more than half way. We will almost undertake to guarantee that you will not get any infection from Wisconsin from gums, hives or used bee supplies.

THE CHAIRMAN.—Tell us under what conditions bees will be permitted to enter Wisconsin from other states?

MR. MACMURRAY.—The rules we have at present are that they must have a certificate of inspection from our inspector, but our recent ex-

perience from some other states is leading us to modify that, so that you must not only have an inspector's certificate, but we must be assured that those bees have not had foul brood for perhaps a year before being shipped, and that they are not coming from a foul brood neighborhood.

THE CHAIRMAN.—Even though they come in combless packages,

MR. MACMURRAY.—No, that is another thing. We think bees are perfectly safe provided they are fed on sugar syrup in transit. We are afraid of bees shipped in the hive, comb and honey.

QUESTION.—Under what circumstances do you permit second hand hives to be moved?

ANSWER.—Our law requires that they be thoroughly scorched. And it must be done in such a way around the edges and around so as to destroy any honey.

QUESTION.—Will they be permitted to have a passport into the state?

ANSWER.—Yes, after they have been treated, after they have been thoroughly treated and reported to the authorities.

THE CHAIRMAN.—Would you consider scorching a hive in an ordinary case sufficient?

ANSWER.—If they are thoroughly schorched, it makes no difference how it is done. Some men use a little straw. Some use a plumber's torch. It should be well done. That is the important thing. The novice will not scorch the top and bottom and edges, which may be just as dangerous as any part.

THE CHAIRMAN.—If there is nothing further, we will stand adjourned till next year.

Whereupon, the meeting adjourned.

FORMATION OF THE ILLINOIS STATE BEEKEEPERS ASSOCIATION.

SPRINGFIELD, ILL., *February 25, 1891.*

The Capitol Beekeepers' Association was called to order by President P. J. England.

Previous notice having been given that an effort would be made to form a State association, and there being present beekeepers from different parts of the State, by motion, a recess was taken in order to form such an association.

P. J. England was chosen temporary chairman and C. E. Yocum temporary secretary. On motion, the Chair appointed Thos. G. Newman, C. P. Dadant and Hon J. M. Hambaugh a Committee on Constitution.

Col. Chas. F. Mills addressed the meeting on the needs of a State association and stated that it was his opinion that the beekeepers should have a liberal appropriation for a State Apiarian Exhibit at the World's Columbian Exposition.

A motion to adjourn till 1:30 p. m. prevailed.

AFTERNOON SESSION.

The Committee on Constitution reported a form for same which, on motion, was read by the Secretary, by sections serially.

Geo. F. Robbins moved to substitute the word "shall" for "may" in the last clause of Section 1, Article III. This led to a very animated discussion, and the motion was lost.

J. A. Stone moved to amend the above-named section by striking out the word "ladies" and all that followed of the same section, which motion led to further discussion, and motion finally prevailed.

Section 2, Article II, relating to a quorum, was, on motion, entirely stricken out.

Mr. Robbins moved to amend Article V by adding the words "Thirty days' notice having been given to each member." Prevailed.

Thos. G. Newman moved to adopt the Constitution, so amended, as a whole. Which motion prevailed.

(See Constitution).

J. A. Stone moved that the Chair appoint a Nominating Committee of three on permanent organization. Prevailed.

Chair appointed as such committee, Col. Chas. F. Mills, Hon. J. M. Hambaugh, and C. P. Dadant.

Committee retired and in a few minutes returned, submitting the following named persons as candidates for their respective offices:

For President—P. J. England, Fancy Prairie.

For Vice Presidents—Mrs. L. Harrison, Peoria; C. P. Dadant, Hamilton; W. T. F. Petty, Pittsfield; Hon. J. M. Hambaugh, Spring; Dr. C. C. Miller, Marengo.

Secretary—Jas. A. Stone, Bradfordton.

Treasurer—A. N. Draper, Upper Alton.

Mr. Black moved the adoption of the report of the Committee on Nominations. The motion prevailed, and the officers as named by the committee were declared elected for the ensuing year.

Hon J. M. Hambaugh moved that Mr. Thos. G. Newman, Editor American Bee Journal, of Chicago, be made the first honorary member of the association. Prevailed.

At this point, Col. Chas. F. Mills said:

"Mr. Chairman, I want to be the first one to pay my dollar for membership," at the same time suiting his action to his words, and others followed his example, as follows:

CHARTER MEMBERS.

Col. Chas F. Mills, Springfield.
Hon. J. M. Hambaugh, Spring.
Hon. J. S. Lyman, Farmingdale.
C. P. Dadant, Hamilton.
Chas. Dadant, Hamilton.
A. N. Draper, Upper Alton.
S. N. Black, Clayton.
Aaron Coppin, Wenona.
Geo. F. Robbins, Mechanicsburg.
J. W. Yocum, Williamsville.
Thos. S. Wallace, Clayton.
A. J. England, Fancy Prairie.
P. J. England, Fancy Prairie.
C. E. Yocum, Sherman.
Jas. A. Stone, Bradfordton.

FIRST HONORARY MEMBER.

Thos. G. Newman, Editor American Bee Journal, Chicago.

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STATE OF ILLINOIS—DEPARTMENT OF STATE.

ISAAC N. PEARSON, *Secretary of State.*

To all to whom these Presents shall come—GREETING:

Whereas, A certificate duly signed and acknowledged having been filed in the office of the Secretary of State on the 27th day of February, A. D. 1891, for the organization of the Illinois State Beekeepers' Association, under and in accordance with the provisions of "An Act Concerning Corporations," approved April 18, 1872, and in force July 1, 1872, and all acts amendatory thereof, a copy of which certificate is hereunto attached.

Now, Therefore, I, Isaac N. Pearson, Secretary of State, of the State of Illinois, by virtue of the powers and duties vested in me by law, do hereby certify that the said, The Illinois State Beekeepers' Association, is a legally organized corporation under the laws of the State.

In Testimony Whereof, I hereunto set my hand and cause to be affixed the great seal of State.

Done at the city of Springfield, this 27th day of February, in the year of our Lord one thousand eight hundred and ninety-one, and the Independence of the United States the one hundred and fifteenth.

[Seal] I. N. PEARSON, *Secretary of State.*

STATE OF ILLINOIS, } ss.
County of Sangamon, }

To Isaac N. Pearson, Secretary of State:

We, the undersigned, Perry J. England, Jas. A. Stone and Albert N. Draper, citizens of the United States, propose to form a corporation under an act of the General Assembly of the State of Illinois, entitled, "An Act Concerning Corporations," approved April 18, 1872, and all acts amendatory thereof; and for the purposes of such organizations, we hereby state as follows, to-wit:

1. The name of such corporation is, The Illinois State Beekeepers' Association.

2. The object for which it is formed is to promote the general interests of the pursuit of bee-culture.

3. The management of the aforesaid Association shall be vested in a board of three Directors, who are to be elected annually.

4. The following persons are hereby selected as the Directors, to control and manage said corporation for the first year of its corporate existence, viz: Perry J. England, Jas. A. Stone, and Albert N. Draper.

5. The location is in Springfield, in the county of Sangamon, State of Illinois.

(Signed) PERRY J. ENGLAND.
JAS. A. STONE.
ALBERT N. DRAPER.

STATE OF ILLINOIS, } ss.
Sangamon County. }

I. S. Mendenhall, a notary public in and for the county and State aforesaid, do hereby certify that on this 26th day of February, A. D. 1891, personally appeared before me, Perry J. England, James A. Stone and Albert N. Draper, to me personally known to be the same persons who executed the

foregoing certificate, and severally acknowledged that they had executed the same for the purposes therein set forth.

In witness whereof, I have hereunto set my hand and seal the day and year above written.

[Seal] S. MENDENHALL, *Notary Public.*

CONSTITUTION AND BY-LAWS OF THE ILLINOIS STATE BEEKEEPERS' ASSOCIATION.

Constitution.

Adopted Feb. 26, 1891.

ARTICLE I.—NAME.

This organization shall be known as The Illinois State Beekeepers' Association, and its principal place of business shall be at Springfield, Ill.

ARTICLE II.—OBJECT.

Its object shall be to promote the general interests of the pursuit of bee-culture.

ARTICLE III.—MEMBERSHIP.

Section 1. Any person interested in apiculture may become a member upon the payment to the Secretary of an annual fee of one dollar and fifty cents ($1.50). (Amendment adopted at annual meeting, December, 1919): And any affiliating association, as a body, may become members on the payment of an aggregate fee of fifty cents (50c) per member, as amended November, 1910.

Sec. 2. Any person may become honorary members by receiving a majority vote at any regular meeting.

ARTICLE IV.—OFFICERS.

Section 1. The officers of this association shall be, President, Vice President, Secretary and Treasurer. Their terms of office shall be for one year, or until their successors are elected and qualified.

Sec. 2. The President, Secretary and Treasurer shall constitute the Executive Committee.

Sec. 3. Vacancies in office—by death, resignation and otherwise—shall be filled by the Executive Committee until the next annual meeting.

ARTICLE V.—AMENDMENTS.

This Constitution shall be amended at any annual meeting by a two-thirds vote of all the members present—thirty days' notice having been given to each member of the association.

By-Laws.

ARTICLE I.

The officers of the association shall be elected by ballot and by a majority vote.

ARTICLE II.

It shall be the duty of the President to call and preserve order at all meetings of this association; to call for all reports of officers and commit-

tees; to put to vote all motions regularly seconded; to count the vote at all elections, and declare the results; to decide upon all questions of order, and to deliver an address at each annual meeting.

ARTICLE III.

The Vice Presidents shall be numbered, respectively, First, Second, Third, Fourth and Fifth, and it shall be the duty of one of them, in his respective order, to preside in the absence of the President.

ARTICLE IV.

Section 1. It shall be the duty of the Secretary to report all proceedings of the association, and to record the same, when approved, in the Secretary's book; to conduct all correspondence of the association, and to file and preserve all papers belonging to the same; to receive the annual dues and pay them over to the Treasurer, taking his receipt for the same; to take and record the name and address of every member of the association; to cause the Constitution and By-laws to be printed in appropriate form and in such quantities as may be directed by the Executive Committee from time to time, and see that each member is provided with a copy thereof; to make out and publish annually, as far as practicable, statistical table showing the number of colonies owned in the spring and fall, and the amount of honey and wax produced by each member, together with such other information as may be deemed important, or be directed by the Executive Committee; and to give notice of all meetings of the association in the leading papers of the State, and in the bee journals at least four weeks prior to the time of such meeting.

Sec. 2. The Secretary shall be allowed a reasonable compensation for his services, and to appoint an assistant Secretary if deemed necessary.

ARTICLE V.

It shall be the duty of the Treasurer to take charge of all funds of the association, and to pay them out upon the order of the Executive Committee, taking a receipt for the same; and to render a report of all receipts and expenditures at each annual meeting.

ARTICLE VI.

It shall be the duty of the Executive Committee to select subjects for discussion and appoint members to deliver addresses or read essays, and to transact all interim business.

ARTICLE VII.

The meeting of the association shall be, as far as practicable, governed by the following order of business:

Call to order.
Reading minutes of last meeting.
President's address.
Secretary's report.
Treasurer's report.
Reports of committees.
Unfinished business.
Reception of members and collection.
Miscellaneous business.
Election and installation of officers.
Discussion.
Adjournment.

ARTICLE VIII.

These By-Laws may be amended by a two-thirds vote of all the members present at any annual meeting.

C. E. YOCOM.
AARON COPPIN.
GEO. F. ROBBINS.

Following is a copy of the law passed by the Illinois Legislature May 19, and signed by the Governor June 7, 1911, to take effect July 1, 1911:

STATE FOUL BROOD LAW.

State Inspector of Apiaries.

Preamble.

§ 1. State Inspector of Apiaries—appointment — term — assistants —per diem.

§ 2. Foul Brood, etc.—what declared nuisances—inspection—notice to owner or occupant—treatment—abatement of nuisance—appeal.

§ 3. Annual Report.

§ 4. Penalties.

House Bill No. 670.

(Approved June 7, 1911.)

AN ACT *to prevent the introduction and spread in Illinois of foul brood among bees, providing for the appointment of a State Inspector of Apiaries and prescribing his powers and duties.*

Whereas, the disease known as foul brood exists to a very considerable extent in various portions of this State, which, if left to itself, will soon exterminate the honey bees; and

Whereas, the work done by an individual beekeeper or by a State inspector is useless so long as the official is not given authority to inspect and, if need be, to destroy the disease when found; and

Whereas, there is a great loss to the beekeepers and fruit growers of the State each year by the devastating ravages of foul brood;

Section 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly:* That the Governor shall appoint a State Inspector of Apiaries, who shall hold his office for the term of two years, and until his successor is appointed and qualified, and who may appoint one or more assistants, as needed, to carry on the inspection under his supervision. The Inspector of Apiaries shall receive for each day actually and necessarily spent in the performance of his duties the sum of four dollars to be paid upon bills of particulars certified to as correct by the said State Inspector of Apiaries, and approved by the Governor.

Sec. 2. It shall be the duty of every person maintaining or keeping any colony or colonies of bees to keep the same free from the disease known as foul brood and from every contagious and infectious disease among bees. All beehives, beefixtures or appurtenances where foul brood or other contagious or infectious diseases among bees exists, are hereby declared to be nuisances to be abated as hereinafter prescribed. If the inspector of apiaries shall have reason to believe that any apiary is infected by foul brood or other contagious disease, he shall have power to inspect, or cause to be inspected, from time to time, such apiary, and for the purpose of such inspection he, or his assistants, are authorized during reasonable business hours to enter into or upon any farm or premises, or other building or place used for the purpose of propagating or nuturing bees. If said inspector of apiaries, or his assistants, shall find by inspection that any person, firm or corporation is

maintaining a nuisance as described in this section, he shall notify in writing the owner or occupant of the premises containing the nuisance so disclosed of the fact that such nuisance exists. He shall include in such notice a statement of the conditions constituting such nuisance, and order that the same be abated within a specified time and a direction, written or printed, pointing out the methods which shall be taken to abate the same. Such notice and order may be served personally or by depositing the same in the postoffice properly stamped, addressed to the owner or occupant of the land or premises upon which such nuisance exists, and the direction for treatment may consist of a printed circular, bulletin or report of the Inspector of Apiaries, or an extract from same.

If the person so notified shall refuse or fail to abate said nuisance in the manner and in the time prescribed in said notice, the Inspector of Apiaries may cause such nuisance to be abated, and he shall certify to the owner or person in charge of the premises the cost of the abatement and if not paid to him within sixty days thereafter the same may be recovered, together with the costs of action, before any court in the State having competent jurisdiction.

In case notice and order served as aforesaid shall direct that any bees, hives, beefixtures or appurtenances shall be destroyed and the owner of such bees, hives, beefixtures or appurtenances shall consider himself aggrieved by said order, he shall have the privilege of appealing within three days of the receipt of the notice to the County Court of the county in which such property is situated. The appeal shall be made in like manner as appeals are taken to the County Court from judgments of justices of the peace. Written notice of said appeal served by mail upon the Inspector of Apiaries shall operate to stay all proceedings until the decision of the County Court, which may, after investigating the matter, reverse, modify or affirm the order of the Inspector of Apiaries. Such decision shall then become the order of the Inspector of Apiaries, who shall serve the same as hereinbefore set forth and shall fix a time within which such decision must be carried out.

Sec. 3. The Inspector of Apiaries shall, on or before the second Monday in December of each calendar year, make a report to the Governor and also to the Illinois State Beekeepers' Association, stating the number of apiaries visited, the number of those diseased and treated, the number of colonies of bees destroyed and the expense incurred in the performance of his duties.

Sec. 4. Any owner of a diseased apiary or appliances taken therefrom, who shall sell, barter or give away any such apiary, appliance, queens or bees from such apiary, expose other bees to the danger of contracting such disease, or refuse to allow the Inspector of Apiaries to inspect such apiary, or appliances, shall be fined not less than $50 nor more than $100.

Approved June 7, 1911.

(Bill passed in the 50th General Assembly.)

BEEKEEPERS' ASSOCIATION.

THE ORIGINAL BILL.

§ 1. Appropriates $1,000 per annum—proviso.

§ 2. How drawn.

§ 3. Annual Report.

AN ACT *making an appropriation for the Illinois State Beekeepers' Association.*

Whereas, The members of the Illinois State Beekeepers' Association have for years given much time and labor without compensation in the endeavor to promote the interests of the beekeepers of the State; and,

Whereas, The importance of the industry to the farmers and fruit-growers of the State warrants the expenditure of a reasonable sum for the holding of annual meetings, the publication of reports and papers containing practical information concerning beekeeping, therefore, to sustain the same and enable this organization to defray the expenses of annual meetings, publishing reports, suppressing foul brood among bees in the State, and promote the industry in Illinois;

Section 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly:* That there be and is hereby appropriated for the use of the Illinois State Beekeepers' Association the sum of one thousand dollars ($1,000) per annum for the year 1917, 1918. For the purpose of advancing the growth and developing the interests of the beekeepers of Illinois, said sum to be expended under the direction of the Illinois State Beekeepers' Association for the purpose of paying the expenses of holding annual meetings, publishing the proceedings of said meetings suppressing foul brood among bees in Illinois, etc.

Provided, however, That no officer or officers of the Illinois State Beekeepers' Association shall be entitled to receive any money compensation whatever for any services rendered for the same, out of this fund.

Sec. 2. That on the order of the President, countersigned by the Secretary of the Illinois State Beekeepers' Association, and approved by the Governor, the Auditor of Public Accounts shall draw his warrant on the Treasurer of the State of Illinois in favor of the treasury of the Illinois State Beekeepers' Association for the sum herein appropriated.

Sec. 3. It shall be the duty of the Treasurer of the Illinois State Beekeepers' Association to pay out of said appropriation, on itemized and receipted vouchers, such sums as may be authorized by vote of said organization on the order of the President countersigned by the Secretary, and make annual report to the Governor of all such expenditures, as provided by law.

Itemized in the Omnibus Bill as follows:

For shorthand reporting	$ 200.00
For postage and stationery	50.00
For printing	550.00
Expense of meetings	200.00
Total amount of the appropriation	$1,000.00

The Assembly ruled that this is not to be paid in *lump* but drawn on itemized accounts.

CODE OF RULES AND STANDARDS FOR GRADING APIARIAN EXHIBITS AT FAIR AS ADOPTED BY ILLINOIS STATE BEEKEEPERS' ASSOCIATION.

COMB HONEY.

Rule 1. Comb honey shall be marked on a scale of 100, as follows:

Quantity	40	Style of display	20
Quality	40		

Rule 2. Points of quality should be:

Variety	5	Straightness of comb	5
Clearness of capping	10	Uniformity	5
Completeness of capping	5	Style of section	5
Completeness of filling	5		

Remarks: 1. By variety is meant different kinds, with regard to the sources from which the honey is gathered, which adds much interest to an exhibit.

2. By clearness of capping is meant freedom from travel stain and a water soaked appearance. This point is marked a little high, because it is a most important one. There is no better test of the quality of comb honey than the appearance of the cappings. If honey is taken off at the proper time, and cared for as it should be, so as to preserve its original clear color, body and flavor will take care of themselves, for excellence in the last two points always accompanies excellence in the first. Clover and basswood honey should be white; heartsease, a dull white tinged with yellow; and Spanish needle, a bright yellow.

3. By uniformity is meant closeness of resemblance in the sections composing the exhibit.

4. By style is meant neatness of the sections, freedom from propolis, etc.

5. Honey so arranged as to show every section should score the highest in style of display, and everything that may add to the tastiness and attractiveness of an exhibit should be considered.

EXTRACTED HONEY.

Rule 1. Extracted honey should be marked on a scale of 100, as follows:

Quantity	40	Style and display	15
Quality	45		

Rule 2. The points of quality should be:

Variety	10	Style of package	10
Clearness of color	5	Variety of package	5
Body	5	Finish	5
Flavor	5		

Remarks: 1. Light clover honey pouring out of a vessel is a very light straw color; Spanish needle, a golden hue, and dark clover honey, a dull amber.

2. Style of package is rated a little high, not only because in that consists the principal beauty of an exhibit of extracted honey, but also because it involves the best package for marketing. We want to show honey in the best shape for the retail trade, and that, in this case, means the most

attractive style for exhibition. Glass packages should be given the preference over tin; flint glass over green, and smaller vessels over larger, provided the latter run over one or two pounds.

3. By variety of package is meant chiefly different sizes; but small pails for retailing, and, in addition, cans or kegs (not too large) for wholesaling, may be considered. In the former case, pails painted in assorted colors, and lettered "Pure Honey", should be given the preference.

4. By finish is meant capping, labeling, etc.

5. Less depends upon the manner of arranging an exhibit of extracted than of comb honey, and for that reason, as well as to give a higher number of points to style of package, a smaller scale is allowed for style of display.

SAMPLES OF COMB AND EXTRACTED HONEY.

Rule 1. Single cases of comb honey, entered as such for separate premiums, should be judged by substantially the same rules as those given for a display of comb honey, and samples of extracted, by those governing displays of extracted honey.

Rule 2. Samples of comb or extracted honey, as above, may be considered as part of the general display in their respective departments.

GRANULATED HONEY.

Rule 1. Candied or granulated honey should be judged by the rules for extracted honey, except as below.

Rule 2. The points of quality should be:

Variety	10	Style of package	10
Fineness of grain	5	Variety of package	5
Color	5	Finish	5
Flavor	5		

Rule 3. An exhibit of granulated honey may be entered or considered as part of a display of extracted honey.

NUCLEI OF BEES.

Rule. Bees in observation hives should be marked on a scale of 100, as follows:

Color and markings	30	Quietness	5
Size of bees	30	Style of comb	5
Brood	10	Style of hive	10
Queen	10		

Remarks: 1. Bees should be exhibited only in the form of single frame nuclei, in hives or cages with glass sides.

2. Italian bees should show three or more bands, ranging from leather color to golden or light yellow.

3. The markings of other races should be those claimed for those races in their purity.

4. A nucleus from which the queen is omitted should score zero on that point.

5. The largest quantity of brood in all stages or nearest to that should score the highest in that respect.

6. The straightest, smoothest and most complete comb, with the most honey consistent with the most brood, should score the highest in that respect.

7. That hive which is neatest and best made and shows the bees, etc., to the best advantage should score the highest.

QUEEN BEES.

Rule. Queen bees in cages should be marked on a scale of 100, as follows:

Quantity ..... 40 Style of caging and display..... 20
Quality and variety..... 40

Remarks: 1. The best in quality consistent with variety should score the highest. A preponderance of Italian queens should overweigh a preponderance of black ones, or, perhaps, of any other race or strain; but sample queens of any or all varieties should be duly considered. Under the head of quality should also be considered the attendant bees. There should be about a dozen with each queen.

2. Neatness and finish of cages should receive due consideration, but the principal points in style are to make and arrange the cages so as to show the inmates to the best advantage.

BEESWAX.

Rule. Beeswax should be marked on a scale of 100, as follows:

Quantity ..... 40 Quality 40
Style of display..... 20

Remarks: 1. Pale, clear, yellow specimens should score the highest, and the darker grades should come next in order.

2. By style is meant chiefly the forms in which the wax is molded and put up for exhibition. Thin cakes or small pieces are more desirable in the retail trade than larger ones. Some attention may be given to novelty and variety.

FOUL BROOD AND OTHER DISEASES OF BEES.

Foul brood—bacillus alevi—is a fatal and contagious disease among bees, dreaded most of all by beekeepers. The ferms of disease are either given to the young larval bee in its food when it hatches from the egg of the queen bee, or it may be contagion from a diseased colony, or if the queen deposits eggs, or the worker bees store honey or pollen in such combs. If in any one of the above cases, the disease will soon appear, and the germs increase with great rapidity, going from one little cell to another, colony to colony of bees, and then to all the neighboring apiaries, thus soon leaving whole apiaries with only diseased combs to inoculate others. The Island of Syria in three years lost all of its great apiaries from foul brood. Dzierzon, in 1868, lost his entire apiary of 500 colonies. Cowan, the editor of the British Bee Journal, recently wrote: "The only visible hindrance to the rapid expansion of the bee industry is the prevalence of foul brood, which is so rapidly spreading over the country as to make beekeeping a hazardous occupation."

Canada's foul brood inspector, in 1890 to 1892, reported 2,395 cases, and in a later report for 1893 to 1896, that 40 per cent of the colonies inspected were diseased. Cuba is one of the greatest honey producing countries, and was lately reported to me by a Wisconsin beekeeper who has been there, and will soon return to Wisconsin: "So plentiful is foul brood in Cuba that I have known whole apiaries to dwindle out of existence from its ravages, and hundreds more are on the same road to sure and certain death. I myself, took, in 90 days in Cuba, 24,000 pounds of fine honey from 100 colonies, but where is that apiary and my other 150-colony apiary? Dead from foul brood." Cuba, in 1901, exported 4,975,600 pounds of honey, and 1,022,897 pounds of beeswax.

Cuba at present has laws to suppress foul brood, and her inspector is doing all possible to stamp the same from the island.

Even in Wisconsin I know of several quite large piles of empty hives, where also many other apiaries where said disease had gotten a strong foothold.

By the kindness of the Wisconsin beekeepers, and, in most cases, by their willing assistance, I have, during the last five years, gotten several counties free of the disease, and at the present writing, March 12, 1902, have what there is in Wisconsin under control and quarantined. This dreadful disease is often imported into our State from other states and counties, so we may expect some new cases to develop until all the states shall enact such laws as will prevent further spread of the same. Arizona, New York (1895), California (1891), Nebraska (1895), Utah (1892), Colorado (1897), have county inspectors, and Wisconsin (1897), and Michigan (1901) have state inspectors. The present Wisconsin law, after five years of testing and rapid decrease of the disease, is considered the best, and many other states are now making efforts to secure a like law.

There are several experimental apiaries in Canada, under control of the Ontario Agricultural College; also a few in the United States, especially in Colorado, that have done great work for the beekeeping industry, and their various publishing bulletins on the same are very valuable. The Wisconsin State Beekeepers' Association has asked that an experimental apiary might be had on the Wisconsin Experimental Farm, but at present there are so many departments asking for aid that I fear it may be some time before beeculture will be taken up.

CAUSES OF FOUL BROOD.

1. Many writers claim foul brood originates from chilled or dead brood. Dr. Howard, of Texas, one of the best practical modern scientific experimenters, a man of authority, has proven beyond a doubt that chilled or common dead brood does not produce foul brood. I have, in the last five years, also proven his statement to be true in Wisconsin, but I do believe such conditions of dead brood are the most favorable places for lodgment and rapid growth of disease. Also, I do not believe foul brood germs are floating in the air, for, if they were, why would not every brood-comb cell of an infected hive become diseased? I believe that this disease spreads only as the adult bees come in contact with it, which is often through robber bees. Brood-combs should not be removed from any colony on cold or windy days, nor should they be left for a moment in the direct rays of sunshine on hot days.

2. The foul brood may be caused by the need of proper food and temperature. Generally this disease does not appear to be serious during a honey flow, but at the close of the honey season, or at time of scarcity, it is quite serious, and as the bees at such times will rob anywhere they can find stores, whether from healthy or diseased combs, it is the duty of every beekeeper to keep everything carefully protected. Hive enrances contracted, no old comb or any article with a drop of honey in where the bees can get to it. While honey is coming in from the various flowers, quite a portion is used direct as food for the larval bee, and with such no disease would be fed to the bees. Such fed bees, even in a diseased hive, will hatch, as is often the case. I never knew a case where a bee hatched from a brood cell that had ever had foul brood in. If the germs of disease are there in the dried scale attached to the lower side walls, bees will store honey therein; the queen will deposit eggs, or the cell may be filled with pollen, or beebread, as some call it. Said honey, or pollen, when it comes in contact with those germs of disease, of the food given to the young bee, if in the proper temperature, said germs of disease will grow and develop rapidly.

CAUSES OF CONTAGION.

I fully believe that if the history of foul brood in Wisconsin were known, nearly every case could be traced to contagion from diseased combs, honey, or from home diseased queen breeders' cages. There are some instances where I have traced the history of contagion in Wisconsin:

1. Diseased apiaries, also single colonies, sold either at auction or private sale. Several law suits have resulted in the settlement of some of the cases.

2. Brood-combs and various implements from diseased hives, used by other beekeepers, and borrowed articles.

3. All the bees in an apiary dead from foul brood, and the hives having an abundance of honey in the brood-combs, said combs placed out by the side of hives, so that neighbor's bees might get the honey. From those combs I lined robber bees to seven other apiaries, and each time became diseased and were treated.

4. Robber bees working on empty honey packages in the back yards of grocery stores and baking factories. Said honey came from diseased apiaries, some located in far distant states, even Cuba.

5. Loaning of hives, combs, extractors, and even empty honey packages.

6. Buying honey from strangers, or not knowing where it was produced, and feeding it to bees without boiling the honey.

7. Too common a practice of using old brood-combs from some apiary where the owner's bees have died from "bad luck," as he calls it.

8. Queen bee—by buying queen bees from strangers and introducing them in the cages they came in. I have traced several new outbreaks of the disease to the hives where such queens were introduced, and the queens came from distant states. To be safe, on arrival of queen, put her carefully alone in a new and clean cage with good food in it. Keep her in there, warm

and comfortable, for a few hours before introducing. The shipping cage and every bee that came with the queen should be put in the stove and burned. I do not think there is any danger from the queen so treated, even from diseased hives, but I do know of many cases where disease soon appear in the hives, where the shipping cage and bees were put in with the colony. The great danger is in the food in said cage being made from diseased honey. I was called to attend a state beekeepers' meeting in another state, and I asked if any there had had experience with foul brood. There was a goodly number raised hands. Then I asked: "Do any of you think you got the disease by buying queen bees?" Again several hands were raised. Even beekeepers there had traced the disease in their apiaries to the buying of queens, and all from the same breeder. If you get queens from abroad, I hope you will do with them as I have described above. Better be on the safe side.

EXPERIMENTS.

1. A prominent Wisconsin beekeeper some years ago had foul brood among his bees so bad that he lost 200 colonies before the disease was checked. Having a honey extractor and comb foundation machine, he first boiled the hives in a large sorghum pan, then in a kettle all combs were melted after the honey was extracted; the honey was boiled and also the extractor and implements used. The bees were returned to their hives on comb foundation he made from the wax made from the melted combs, then fed the boiled honey. Several years have passed, and there has been no sign of disease in his apiary since.

2. Foul brood germs are not always killed when exposed to a temperature of 212 deg. F. (boiling point) for 45 minutes. But in every case where the combs are boiled in boiling water, and same were well stirred while boiling, no germs were alive.

3. Foul brood in broom-combs is not destroyed when exposed to the temperature of Wisconsin winters of 20 deg. below zero, and in one case I developed foul brood from combs that had been exposed to 28 deg. below zero.

4. Honey, if stored in diseased combs, acts as a preserving medium, and in such cases the germs of disease will remain so long as the comb is undisturbed. Four years at least.

5. Honey or beeswax, or the refuse from a solar or sunheat extractor, is not heated enough to kill foul brood germs. Several cases of contagion where robber bees worked on solar extractor refuse or honey.

6. Comb foundation made by supply manufacturers is free from live germs of disease and perfectly safe to use. To prove this experiment beyond a doubt, I took a quantity of badly diseased brood-combs from several apiaries and render each batch of combs into wax itself on the farm where found. Then on my own foundation mill I made some brood foundation. I also took quite a quantity more of said wax, went to two wholesale comb foundation manufacturers, and both parties willingly made my experimental wax into comb foundation, just the same as they do every batch of wax, I then divided the various makes of foundation, and selected 20 of the best beeyards in Wisconsin, where no disease has ever been known; had the same placed in 62 of their best colonies, and in every case no signs of disease have appeared. Those same colonies continue to be the best in the various apiaries.

SYMPTOMS OF FOUL BROOD.

1. The infected colony is not liable to be as industrious. Hive entrances with few guard bees to protect their home. Sometimes fine dirt or little bits of old comb and dead bees in and around the hive entrance, and often robber bees seeking entrance.

2. Upon opening the hive, the brood in the combs is irregular, badly scattered, with many empty cells which need inspection.

3. The cappings over healthy brood are oval, smooth, and of a healthy color peculiar to honey bee brood, but if diseased, the cappings are sunken, a little darker in color, and have ragged pin holes. The dead larval bee is of a light color, and, as it is termed, ropy, so that if a toothpick is inserted and slowly withdrawn, this dead larva will draw out much like spittle or glue.

4. In this ropy stage there is more or less odor peculiar to the disease; it smells something like an old, stale gluepot. A colony may be quite badly affected and not admit much odor, only upon opening of the hive or close examination of the brood. I have treated a few cases where the foul brood odor was plainly noticed several rods from the apiary.

5. Dried Scales—If the disease has reached the advanced stages, all the above described conditions will be easily seen and the dried scales as well. This foul matter is so tenacious that the bees cannot remove it, so it dries down on the lower side wall of the cell, midway from the bottom to front end of the cell, seldom on the bottom of the cell. According to its stage of development, there will be either the shapeless mass of dark brown matter, on the lower side of the cell, often with a wrinkled skin covering, as if a fine thread had been inserted in the skin lengthwise and drawn enough to form rib-like streaks on either side. Later on it becomes hardened, nearly black in color, and in time dries down to be as thin as the side walls of the cell. Often there will be a small dried bunch at the front end of the cell, not larger than a part of a common pin head. To see it plainly, take the comb by the top bar and hold it so that a good light falls into the cell at an angle of 75 degrees from the tip of the comb, while your sight falls upon the cell at an angle of about 45 degrees. The scales, if present, will easily be seen as above described. This stage of disease in combs is easily seen, and is always a sure guide or proof of foul brood. Such combs can never be used safely by the bees, and must be either burned or carefully melted. Be sure not to mistake such marked combs in the spring for those soiled with bee dysentery. The latter have a somewhat similar appearance, but are more or less surface soiled, and will also be spotted or have streaked appearance by the dark brown sticky excrements from the adult bees.

TREATMENT.

"A beekeeper who does not discover foul brood, before his nostrils remind him that there is something wrong with his bees, is not the proper person to treat the case." Dr. Howard, in his valuable book on foul brood, states: "I regard the use of all drugs in the treatment of foul brood as a useless waste of time and material, wholly ineffectual, inviting ruin and total loss of bees. Any method which has not for its object the entire removal of all infectious material beyond the reach of both bees and brood, will prove detrimental and destructive, and surely encourage the recurrence of the disease." In Wisconsin, I have tried many methods of treatment, and cured some cases with each method; but the one that never fails, if carefully followed, and that commends itself, is the McEvory treatment. Canada's foul brood inspector has cured foul brood by the wholesale—thousands of cases.

McEVOY TREATMENT.

"In the honey season, when the bees are gathering honey freely, remove the combs in the evening and shake the bees into their own hives; give them frames with comb foundation starters, and let them build comb for four days. The bees will make the starters into comb during the four days, and store the diseased honey in them, which they took with them from the old comb. Then, in the evening of the fourth day, take out the new combs and give them comb foundation (full sheets) to work out, and then the cure will be complete. By this method of treatment all the diseased honey is removed from the bees before the full sheets of foundation are worked out. All the old foul brood combs must be burned or carefully made into wax,

after they are removed from the hives, and all the new combs made out of the starters during the four days must be burned or made into wax, on account of the diseased honey that would be stored in them. All the curing or treating of diseased colonies should be done in the evening, so as not to have any robbing done or cause any of the bees from the diseased colonies to mix and go with the bees of healthy colonies. By doing all the work in the evening, it gives the bees a chance to settle down nicely before morning, and then there is no confusion or trouble. This same method of curing colonies of foul brood can be carried on at any time from May to October, when the bees are not getting any honey, by feeding plenty of sugar syrup in the evenings to take the place of the honey flow. It will start the bees robbing and spread the disease, to work with foul brood colonies in warm days when the bees are not gathering honey, and for that reason all work must be done in the evenings when no bees are flying.

"When the diseased colonies are weak in bees, put the bees, two, three, or four colonies together, so as to get a good sized colony to start the cure with, as it does not pay to spend time fussing with little, weak colonies. When the bees are not gathering honey, any apiary can be cured of foul brood by removing the diseased combs in the evening and giving the bees frames with comb foundation starters on. Then, also in the evening feed the bees plenty of sugar syrup, and they will draw out the foundation and store the diseased honey which they took with them from the old combs; on the fourth evening remove the new combs made out of the starters, and give the bees full sheets of comb foundation, and feed plenty of sugar syrup each evening, until every colony is in first class order. Make the syrup out of granulated sugar, putting one pound of water to every pound of sugar, and bring it to a boil. As previously stated, all the old comb must be burned, or made into wax, and so must all new combs made during the four days. No colony is cured of foul brood by the use of any drug.

"A. I. Root, of Medina, Ohio, says: 'The starvation plan, in connection with burning the combs and frames and building the hives, has worked the best in treating foul brood. It never appeared after each treatment, though it did in some cases where the hives were honey-stained and not boiled, thus confirming the theory or fact of spores'."

All the difference from the McEvoy treatment that I practice is this: I dig a peep pit on level ground near the diseased apiary, and after getting a fire in the pit, such diseased combs, frames, etc., as are to be burned are burned in this pit in the evening, and then the fresh earth from the pit returned to cover all from sight. Often I use some kerosene oil, a little at a time being poured on old brood combs, or those having much honey in, as they are hard to burn. If diseased combs with honey in are burned on the surface of the soil, there is great danger; the honey, when heated a little, will run like water on the soil, and in the morning the robber bees will be busy taking home the diseased honey that was not heated enough to kill germs of foul brood.

I also cage the queen while the bees are on the five or six strips of foundation. It helps to keep the colony from deserting the hive and going to other colonies.

R. L. Taylor, Michigan University Experimental Apiary, reports: "The plan that the colony be shaken out into another hive after being allowed to build comb for four days, I have proven, in 100 cases, to be unnecessary."

In Wisconsin I, too, have cured several cases by the one transferring, when honey was not coming in very freely, but it is better, and a great saving of time to both bees and owner, to exchange in three or four days, those foundation starters, for full sheets of foundation. Diseased brood combs and those with honey in, if melted in a sun or solar extractor, the wax, honey or residue is not hot enough to kill germs of foul brood. This I have proven by several experiments. It must be boiled and well stirred while boiling, to be safe.

I do not believe in, or practice, burning any property, such as hives, bees, beeswax or honey, that can be safely treated and saved. Many times

it is poor economy to save all, and so many beekeepers are not so situated as to keep all diseased materials from robber bees while taking care of it; the best and only safe way is to burn the diseased combs and frames.

UTAH.

Utah has county inspectors, and from one who has remarkable success I copy the report of his method of treatment.

"Wherever found it should be dealt with earnestly and with dispatch. If the colony is weak, I recommend something to kill the bees, and, in order to do this without letting a bee escape, take a tablespoonful of sulphur and place it in the hive entrance of the hives; if there is any breeze, turn the hive so it will blow in the entrance. Then fire the sulphur and it will soon kill the bees. This should be done early in the morning, before any of the bees are flying, as one bee escapeing from the hive might carry the disease to any colony with which it may take up its abode. If the colony is a strong one, I would keep the entrance partly closed, so as to prevent any other bees from getting in. Then as soon as fruit blossoms come out so the bees can obtain honey, I treat them. I procure an empty box of any kind, so it is clean, then find the queen, put her in a screen wire cage, which is easily made. Take a small piece of screen roll it up and tie a string around either end; work up one end, then place the queen and a few workers, for company, in the cage, and place in the other end cork. Put same in this box, and shake all the bees out of their hive into this box. This must be done in the evening, when no bees are flying. Keep the queen in this box for 24 to 48 hours, allowing the bees to fly in and out as they please. Next take a clean hive, with good, healthy combs or foundation, and shake bees into it, letting the queen go, and they will be free from disease. The old combs are melted into wax, bringing same to a good boil. Often washing with boiling water any hives or implements that might contain disease. Whenever strictly followed, this has affected a cure." C. Wilcox, Emery Co., Utah.

PICKLED BROOD.

Some seasons pickled brood is quite bad among bees, and in a few cases I have known it to reduce large colonies, even large apiaries, to doubtful hopes, but those same colonies, after I gave them treatment, were in a month free from disease. Sometimes it takes as careful handling as if foul brood. I do not believe it is contagious, for all I have seen 60 colonies in one apiary badly reduced by it. As an experiment, one of my out-apiaries had 50 colonies at one time with pickled brood. I treated them, and all were soon free from dead brood. At the same time I took ten of the worst brood-combs, where at least two-thirds of the brood were dead, and placed these combs in other strong, healthy colonies. They at once cleaned out the dead brood, and reared as nice brood as one could ask for.

SYMPTOMS.

The larval bees (in last of May and through June show light brown spots; a little later the cappings have small holes in—the cappings are not shrunken or dark colored, as in foul brood. The dead bee will be first swollen, with a black head dried to a hard bunch, and often turned up—Chinaman-shoe-like. The skin of the dead bee is quite tough, and, if punctured, the thin, watery fluid of the body will flow as freely as water, often a little yellow or brownish colored from the dissolved pollen from the abdomen of the bee. It has very little or no smell; does not at any time stick to the walls of the comb; is easily pulled out of the cell; is never ropy or sticky, and, if the colony is properly cared for, the bees will take care of themselves. Plenty of liquid, unsealed honey and pollen near the brood, and hives so protected as to keep the bees and brood comfortable on cold days and nights.

Never put bees on old black brood-combs, or those with dead broods in; better make wax of the combs, and give the bees full sheets of brood-comb foundation.

TREATMENT.

Keep all colonies strong, with plenty of unsealed honey near the brood, and if hives are properly sheltered, so as to be warm on cold days and nights, there will be little or no pickled brood. If the queen is old, shows signs of weakness by putting several eggs in one brood cell and nursing several others, so that the brood is patchy, I would kill such a queen, feed the bees a little, and, when queen cells are started, remove them all and give them a queen and bees, between two of her own brood-combs from a hive where she has lived. I do not think pickled brood is often the fault of the queen, but rather a lack of proper food and heat in the hive. In most cases, a shortage of liquid honey, or moldy pollen, even in hives with plenty of sealed honey in the outer combs. There is a time in spring in Wisconsin, between dandelions and white clover bloom, when there is no honey coming in from flowers, and often cold days and nights, so that the live bees consume the liquid, unsealed honey first, and cluster in a compact body to keep warm; the result often is the larval bee, just changed from the egg to a tender little grub, is either starved, half-fed or chilled, so that it grows slowly, and too often it dies, and then it is we first notice this about the time white clover honey begins to come in. In other parts of the state, where pickled brood appeared, it was from the same cause, and at other dates, which was due to a difference of time of honey bloom.

Wherever I fed daily some honey, or even sugar syrup, and kept the hive warm, all dead brood soon disappeared while in the same apiaries other colonies affected and not so treated, continued for some time, but got rid of it as soon as treated.

Strong colonies of bees in the fall, with a young laying queen, and an abundance of good honey, sealed or capped by the bees, if properly cared for during winter, whether in the cellar or in chaff hives, wintered out of doors in sheltered location, seldom have pickled brood, chilled or other dead brood, or dysentery, and are the colonies that give their owner profit.

BLACK BROOD.

Black brood is another fatal and contagious disease among bees, affecting the old bees as well as the brood. In 1898, 1899 and 1900, it destroyed several apiaries in New York. Last year I found one case of it in Wisconsin which was quickly disposed of. Dr. Howard made more than a thousand microscopic examinations, and found it to be a distinct form of bacteria. It is most active in sealed brood. The bees affected continue to grow until they reach the pupa stage, then turn black and die. At this stage there is a sour smell. No decomposition from putrefaction germs in pickled brood. In black brood the dark and rotten mass in time breaks down and settles to lower side walls of the cell; is of a watery, granulated, syrupy fluid, jelly-like; is not ropy or sticky, as in foul brood, and has a peculiar smell, resembling sour, rotten apples. Not even a house fly will set a foot upon it.

TREATMENT.

Best time is during honey flow, and the modified McEvoy plan, much as I have treated foul brood, by caging the queen five days, remove the foundation starters and giving full sheets, keeping queen caged five days longer. As great care should be taken of diseased hives, combs, honey, etc., as in foul brood.

DYSENTERY.

Dysentery among bees in Wisconsin in the spring of the year is often quite serious. Many colonies die with it. Dysentery is the excrements of the old bees; it is of brownish color, quite sticky, and very disagreeable smelling, and is sometimes mistaken for foul brood.

CAUSES.

1. Bees confined too long in the hives, so that they can no longer withhold their excrements, and are compelled to void the same on the other bees and combs.
2. Poor winter stores, gathered in the fall from honey-dew, cider mills, sorghum mills, rotten fruit; also some kinds of fall flowers.
3. Old and especially moldy pollen or bee-bread.
4. Hives too cold or damp. If moisture from the breath of the bees is not carried out of the hive by some means such as through a deep cushion of some kind over the bees that will absorb moisture and at the same time retain the heat, or by some means of ventilation, so that all is dry and comfortable. If mold forms on the combs or cellar is so damp as to form mold, there is great danger the bees will have dysentery and die.

TREATMENT.

1. First of all, have an abundance of combs of sealed clover or basswood honey in brood frames carefully saved, and see that each colony is wintered on such food. Three or four such combs will winter a fair colony safely, if confined on those combs late in the fall, and the hive contracted to fit the same. This is one of the most important conditions for success in wintering.
2. If in the fall the bees have gathered this unwholesome honey from the above named sources, it should all be extracted and either exchanged for those honey combs, or feed the bees good honey or sugar syrup until winter stores are secured. This should be done before cold weather in the fall.
3. Hives contracted and made comfortable, whether in cellar or outdoors.
4. If wintered in chaff hives outdoors, with feed as above directed, and there come one or two warm spells during winter, so that the bees can have a cleansing flight, they will not have dysentery or dead brood, and will be much stronger when clover opens.

If wintered in the cellar, the bees will not need so much honey, and if the winters are generally long,, with doubtful warm spells, the cellar will be best. But to keep the bees from dysentery, so often fatal to cellar-wintered bees, they should have such winter stores as above spoken of, then the cellar kept at a medium temperature, about 32 deg. F., ventilated so the air is fresh, and no mold will form in the cellar. Fresh air-slaked lime on the bottom of the cellar may help, if it is damp or has poor air.

5. Dysentery will not appear if bees are kept on sugar syrup, or best grade white clover or basswood honey, and are in a dry place, either sheltered by cellar or chaff hive.

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